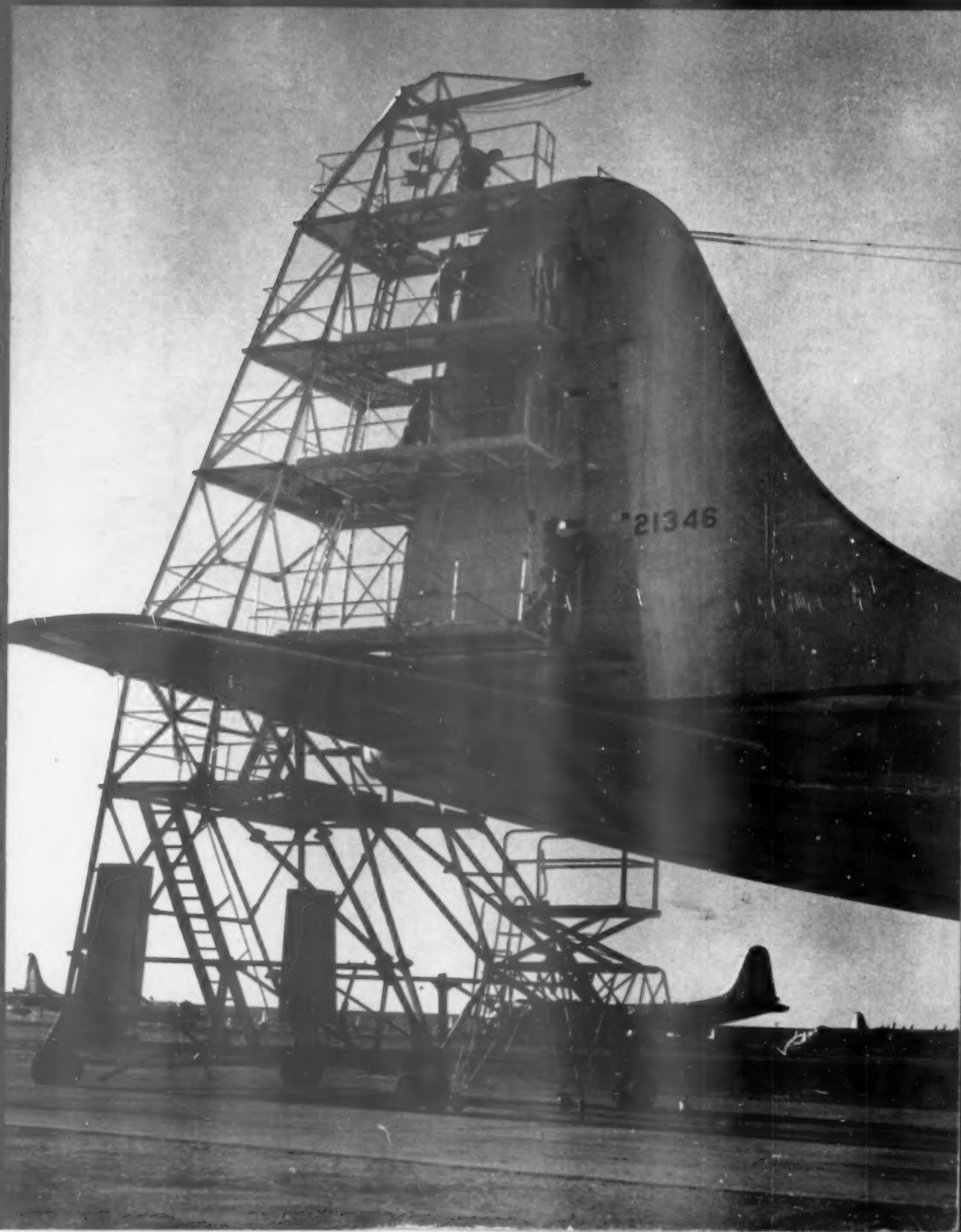


SAFETY NEWS





ORDINARY WORK CLOTHES



M·S·A CHEMKLOS

Here's Your Real Proof that M·S·A ChemKlos LAST!

Both shirts pictured above were worn by a worker handling aluminum chloride and perchlorethylene. After one week's wear, and one washing, the ordinary work shirt fell into holes, a total loss. It's a different story for the M.S.A. ChemKlos shirt. After five months' wear, and many washings it was still in good condition, as you can see from the photo at top right.

WHY M. S. A. CHEMKLOS RESIST ACID, CAUSTIC, ABRASION

Dynel fabric is the secret of M.S.A. ChemKlos resistance to acids and caustics. This new fabric is inherently chemical resistant . . . the greater life is in the fabric, not added by a chemical process. And M.S.A. ChemKlos are made of Dynel *throughout*. Dynel means M.S.A. ChemKlos can be washed in solvents or caustics that would destroy ordinary work clothes. Stubborn grease, oil, wax are safely and easily removed. What about durability in service? Loomed in a special weave that gives improved abrasion resistance, M.S.A. ChemKlos wear ON when other work clothes wear OUT.

WHY M. S. A. CHEMKLOS LOOK AND FEEL BETTER

From collar to trouser bottom, M.S.A. ChemKlos meet comfort and style demands of workers everywhere. Tailoring is sturdy, gives the wearer freedom of movement. There's plenty of pocket room. Shirt tails are long, stay put when worn inside trousers. Fabric is smooth, pliable. M.S.A. ChemKlos are available in smart looking, serviceable gray. Laboratory coats and smocks for men and women are also available.

End your work clothes problems today. Our bulletin gives complete details on construction, sizes. Write for your copy.



Call the M.S.A. man on your every safety
problem . . . his job is to help you

MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pa.

At Your Service: 76 Branch Offices in the United States

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IMPROVED No. 90A Series WILLSON MonoGoggle

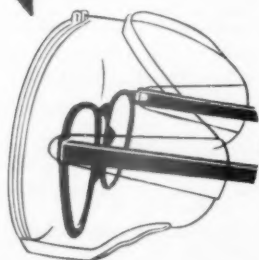


Wider, Deeper Frame Gives Greater Clearance Over Spectacles

We've taken the popular Willson MonoGoggle® design and made it with a deeper and wider pliable, transparent vinyl frame with grooves molded into the sides for extra roominess over glasses. It provides protection against light impact hazards on such operations as spot welding, buffing, wood working and chemical handling.

Workers who wear prescription glasses—even the new, big plastic frames—will welcome its extra roominess. Transparent frame is tinted light green to keep out glare, but admits adequate side light. Clear or green plastic lenses are securely held in place by a deep channel and closed "tab pocket".

Ask your Willson distributor to show you the new No. 90A Series MonoGoggles, available with either direct or indirect ventilated frames or non-ventilated styles. Or write for bulletin.



Side view shows molded-in grooves in sides of frame provide ample clearance for spectacle temples—removes interference with eye glass comfort.

More than 300 Safety Products



Carry This Famous Trademark

WILLSON

Established 1870

WILLSON PRODUCTS, INC., 205 Washington St., Reading, Pa.

SAFETY NEWS

Published monthly by National Safety Council

FEBRUARY 1954

THE COVER: These men working 50 feet above the ground are still the responsibility of the ground safety program of the Strategic Air Command. They are using a skyscraper scaffold type maintenance stand in servicing a B-36 bomber at Carswell Air Force Base, Texas. (US Air Force Photo)

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Kangaroo

...pretty soft for you!

Stock No. 1603



Soft and strong!

Nothing more comfortable on earth!



There are thousands of "tender feet" in industry—men whose feet just can't take the tough materials and the heavy construction that make regular safety shoes stand up on the job. So they refuse to wear safety shoes at all. But there IS one leather that's strong enough to give satisfactory service under any ordinary conditions—soft enough to pamper the tenderest feet—GENUINE KANGAROO!

It has been a favorite for over half a century in shoes sold for comfort alone. And it makes the gentlest safety shoe ever devised for sensitive feet. Buy it—show it—to the man who "won't wear" regular styles and leathers.

LEHIGH
SAFETY SHOE COMPANY

Finnell salutes

the new **DOUGLAS** sky queen—**DC★7**



On the floorways at Douglas Aircraft

Finnell's SELF-POWERED SCRUBBER-VAC
SPEEDS VAST-AREA SCRUBBING

This *all-in-one* cleaning unit, *Finnell's 218G*, is indeed the answer to today's need for increasing output per man-hour on vast-area scrubbing. *The 218G completely mechanizes scrubbing*—applies the cleanser, scrubs, and picks up—*all in one operation!* Independence from power lines permits the machine to go wherever the operator guides it . . . working in and out of production areas with ease . . . *scrubbing continuously.* Thus the 218G is capable of cleaning up to 16,000 sq. ft. per hour!

Maintenance men appreciate the labor-saving features of this unit. The gasoline engine starts quickly and easily by pressing the starter button (eliminates rope-pulling). And there are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate (up to 136 ft. per minute). *One engine* (2 cyl., 4 cycle, 9.4 hp., air-cooled) operates all working parts. The powerful vac performs quietly.

Whatever the area of your floors, find out what *you* would save with a *Combination Scrubber-Vac.* Finnell makes a full range of sizes, including *electric* as well as *gasoline* models . . . available on lease or purchase plan. It's also good to know that a *Finnell Floor Specialist and Engineer* is nearby to help train your maintenance operators in the proper use of *Finnell Equipment* and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2202 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.



Applies the cleanser, scrubs, and picks up—all in one operation

Two 18" brushes give a 36" scrubbing surface

Mounts a SELF-STARTING gasoline engine

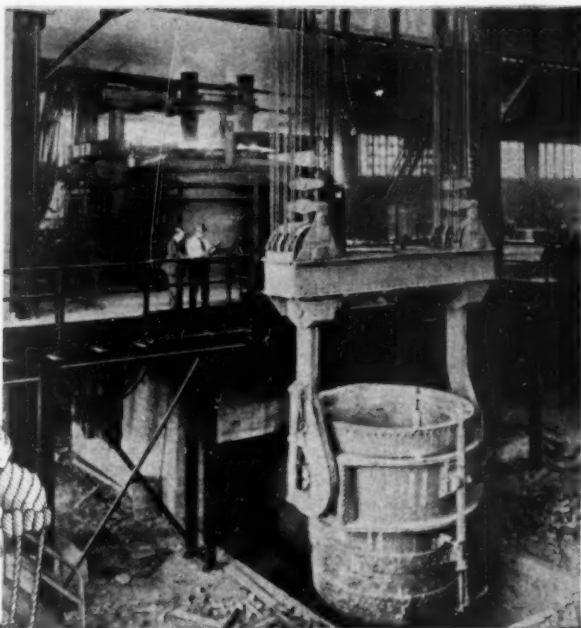
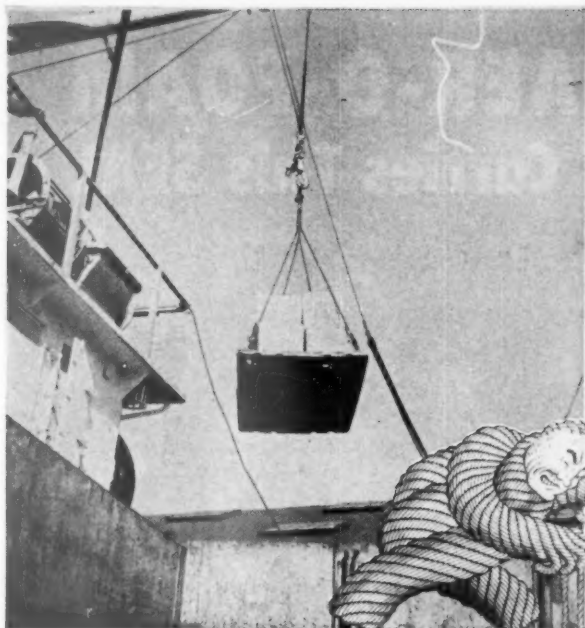
Gasoline only is used for fuel—no mixing required

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines



**BRANCHES
IN ALL
PRINCIPAL
CITIES**



You Can Hoist More On Any Crane with the...

**Tuffy
SLINGS**

Tuffy

Team

**A NEW
Tuffy
HOIST LINE**

Sling service life and sling safety went up and sling costs went down with the introduction of the entirely new, patented, 9-part machine braided wire fabric construction of Tuffy Slings. It's a construction so flexible and so tough you cannot materially damage the fabric when kinking or knotting it. More and more users throughout the industry have forgotten about complicated specifications—now they say Tuffy, of a given diameter, length and type. That's all the Tuffy distributor needs to fill orders promptly. There are Twelve Tuffy Types factory fitted, or you can order Tuffy braided wire sling fabric

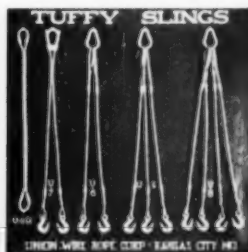


on the reel if you do your own rigging. Now, because Tuffy Sling users kept asking for it, there is a specially designed and constructed TUFFY HOIST LINE. It's new on the market, but it has weathered many, many months of laboratory research and testing, and many more months of field testing on OVERHEAD, STIFF LEG and MOBILE CRANES, and on CLAM-SHELLS AND DERRICKS.

Reeve your cranes with Tuffy Hoist Line. See for yourself how Tuffy flexibility, wearability and toughness to absorb load shocks gives you the longest service life you've ever had.

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It is as simple as that to order. The name Tuffy, the diameter and length gets you the top hoist line value for any crane. To order Tuffy Slings use the same three words plus the type of sling wanted. Write us for name of nearest distributor and your copy of the comprehensive 48-page Tuffy Sling Handbook and Rigger's Manual.



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YOUR ASSURANCE OF *FIRST-TIME* AND *EVERY-TIME* DEPENDABILITY FOR FLAMMABLE LIQUID FIRES

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EVERY BATCH of AER-O-FOAM is tested on actual petroleum or polar-solvents fires before it is offered to you. Each phase of the performance is checked—such as extinguishment time, foam volume and sealability.

AER-O-FOAM's tough blanket of tiny air-filled bubbles smothers and cools fire at the same time. What's more, it can be used to insulate surrounding property and equipment against fire damage. Write for data on AER-O-FOAM (for petroleum fires) and AER-O-FOAM "99" (for polar-solvent or petroleum fires). When you need foam fire protection, you need *fire-tested* AER-O-FOAM protection.

NATIONAL

FOAM SYSTEM INCORPORATED

Headquarters for Foam Fire Protection — WEST CHESTER, PA.

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**CUSHIONED COMFORT
UNDERFOOT...**

**THOM McAN'S
NO. 4200**



Here's the safety shoe for every man in your outfit—whether he's standing by a machine all day or "commuting" between the plant and the office. Men on their feet will appreciate the all-day comfort of its cushioned inner-sole—men at their desks a lot will be proud of its good looks and style. Note the fine leather sole—the trim-fitting Blucher pattern. Feature for feature and dollar for dollar, there's no better safety shoe buy!

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SAFETY SHOES

A DIVISION OF MELVILLE SHOE CORPORATION

4-4200—Thom McAn's new safety shoe with leather outsole and cushioned inner-sole. Leather-lined steel toe box. Chestnut brown leather upper and leather heel. Also with the steel sole and heel, 4-4200.



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Write today for details of this foot-tanned service and Thom McAn's Away from home purchase plan, plus descriptions of the full line of Thom McAn safety shoes to

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Bump that assures positive results

When fire strikes, seconds count... your fire extinguishers must be the right type and function properly from the very start... failure means serious losses.



The growing popularity of the highly effective powdered dry chemical fire extinguishing agent may be hampered by a drawback... settling or packing, can occur after a lapse of time. However, with C-O-TWO Dry Chemical Type Fire Extinguishers there's no chance of this happening.

The exclusive inverting and bumping design of C-O-TWO Dry Chemical Type Fire Extinguishers provides mechanical breakage of the dry chemical by shifting its position in the cylinder. This outstanding mechanical breakage, plus continuous inert gas pressured agitation or fluffing of the skillfully blended free flowing dry chemical, guarantee lasting, foolproof fire protection.

No other brand on the market today gives you this extra margin for positive results. Inverting and bump-

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With C-O-TWO Dry Chemical Type Fire Extinguishers the heat-shielding dry chemical is a non-conducting, non-abrasive, non-toxic, finely pulverized powder compound... blankets fire instantly. Sizes range all the way from 4 to 150 pounds capacity... all fully approved by the Underwriters' Laboratories, Inc., Factory Mutual Laboratories and Government Bureaus.

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WHY PAY FOR FOG?



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Every time safety goggles are perched uselessly on caps;
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—It costs you money.



You can eliminate this cost with K-LENS-M Liquid Method of lens cleaning. Fog that interferes with vision can steal production time all along the line wherever there is humidity, body heat or temperature extremes. K-LENS-M Lens Cleaner and K-LENS-M Anti-Fogging Liquid have proved for more than a decade to be the most effective and most economical way to combat this loss.

K-LENS-M The Acknowledged Leader in the Lens Cleaning Field

Tested Along the Line

*Safer for glass and plastic
A.G.*

*Quicker acting—
longer lasting
M.H.*

**PROVED
O.K.**

*Costs less per day
than anything tested
F.R.*

*Big help to eye-protection
program R.I.*

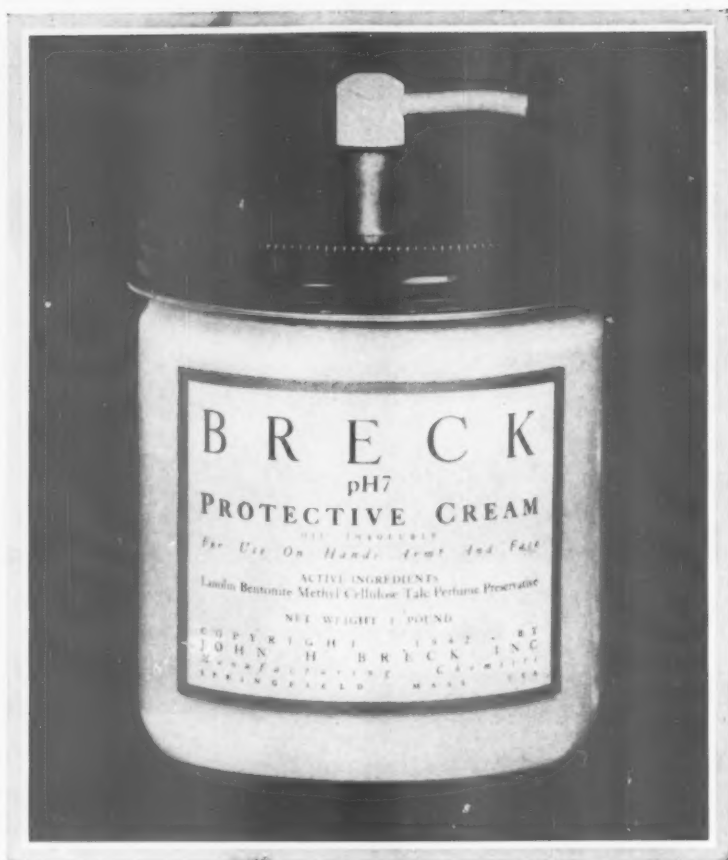
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K-LENS-M . . . Complete Lens Cleaning and Anti-Fogging Equipment

THE **WILKINS** CO., INC. CORTLAND 1, N. Y.

Liquid Lens Cleaner
Lint-free Lens Tissues
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Dispenser Cabinets
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pH7 PROTECTIVE CREAM

Breck pH7 Protective Cream covers the skin with an invisible, oil-resistant film which is neither slippery nor sticky. This neutral film prevents contact of irritants with the skin. Breck pH7 Protective Cream is effective against such irritants as lubricating oils, grease, aromatic and hydrocarbon solvents, cutting compounds, synthetic resins, rubber dust, fiber glass, paint, iron dust and duplicating inks. Breck pH7 Protective Cream is easily removed with Breck Hand Cleaner or with soap and water, making the use of harsh cleansers unnecessary.

A Breck Industrial Preparations Booklet



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FASTER
MORE EFFECTIVE...
MORE DEPENDABLE
FIRE-STOPPING
POWER

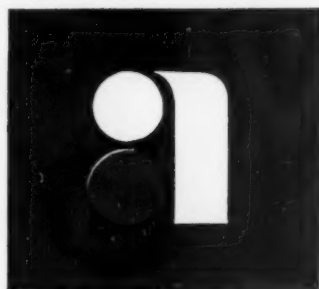


MODEL 20-B



ANSUL
Chemical Company

FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN



ANSUL

FIRE EXTINGUISHING EQUIPMENT

FASTER . . . A short, quick downward motion of the puncture lever pressurizes the extinguisher and it is ready for instant use.

MORE EFFECTIVE . . . Even the inexperienced operator gets near-expert results because of the ease of operation and handling. In addition ANSUL "PLUS-FIFTY" Dry Chemical has greater fire-killing power.

MORE DEPENDABLE . . . Exclusive ANSUL-ENGINEERED design features include water-tight and corrosion-resistant construction, easy, on-the-spot recharge without special tools and other exclusive Ansul developments which insure greater dependability.

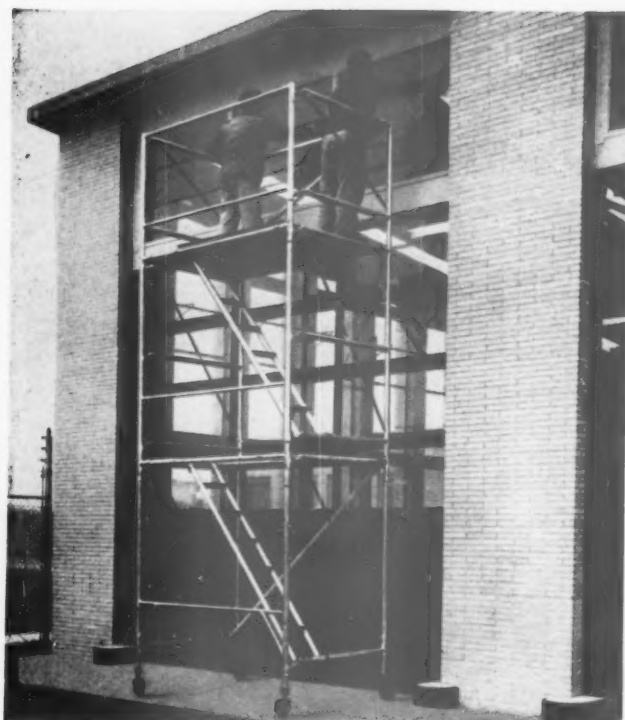
FIRE-STOPPING POWER . . . ANSUL FIRE EXTINGUISHERS have the highest ratings for fire-stopping power ever awarded any type of class B and C fire extinguishing equipment.



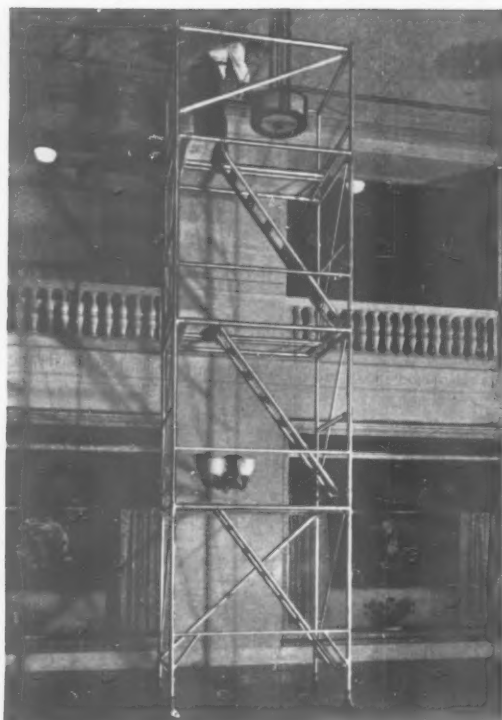
Send for File No. B-217. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

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MANUFACTURERS OF
DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT, REFRIGERATION
PRODUCTS, INDUSTRIAL AND FINE CHEMICALS AND LIQUEFIED GASES



WASHING WINDOWS, painting, building repairs and general overhead maintenance at a New Jersey Turnpike Building is speeded by this lightweight, mobile 2-section "Fold-A-Way" Aluminum Scaffold. Adjustable legs are equipped with casters that lock both wheel and swivel into stationary position.



NO ACROBATICS are needed while re-lamping The Builders' Building, Chicago, when a "Fold-A-Way" Scaffold is on the job. The easily-assembled, completely safe "Fold-A-Way" is rapidly becoming a basic working tool with maintenance engineers. Underwriters' Laboratories approved.

Swings Open Like a Book — Assembles in Minutes

FOLD-A-WAY

TRADE MARK

SCAFFOLD

ALUMINUM

ONE MAN CAN ERECT the base section of a "Fold-A-Way" Aluminum Scaffold in less than sixty seconds! And a full three-level assembly is completed in a few minutes time.

Easiest assembly, mobility and completely safe workroom make it a real time-saver for all types of off-the-ground work. Exclusive features make the "Fold-A-Way" far easier to erect... end frames swing open sideways (like the pages of a book) while the scaffold is in a standing position. Since the end frames require only an easily-managed swing of about 90-degrees, the erector is always *within* the base area. The "Fold-A-Way" stands freely and does not "fold under" during erection. Superior construction includes coped, full-welded joints and special adjustment legs with casters that lock at both wheel and swivel.

The "Fold-A-Way" actually "folds away" into compact 6 1/2 in. thick packages that are easily carried, transported or stored. Write for free Bulletin ASF-1.



End frames swing outward like pages of a book. Entire base section is free standing—end frames will not fold under during erection.

ANNOUNCING . . .

DESIGNED TO MAINTAIN our high safety standards, this new, improved screw leg is now available. By simply turning the threaded collar you get adjustments, up to 24", for the height desired. Yet the legs and casters will not fall out of the scaffold. The adjusting collar device, mounted on the scaffold leg, gives maximum speed in adjusting, with minimum effort.



FOR GREATER SAFETY...EFFICIENCY...ECONOMY



THE PATENT SCAFFOLDING CO., INC.

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Branches in all principal cities



ALUMINUM SECTIONAL
LADDER SCAFFOLDS

Erected from ladder frames of three heights, these 24" wide Aluminum Ladder Scaffolds are available in spans of 6 ft, 8 ft or 10 ft Approved by UL.

Air Casualties

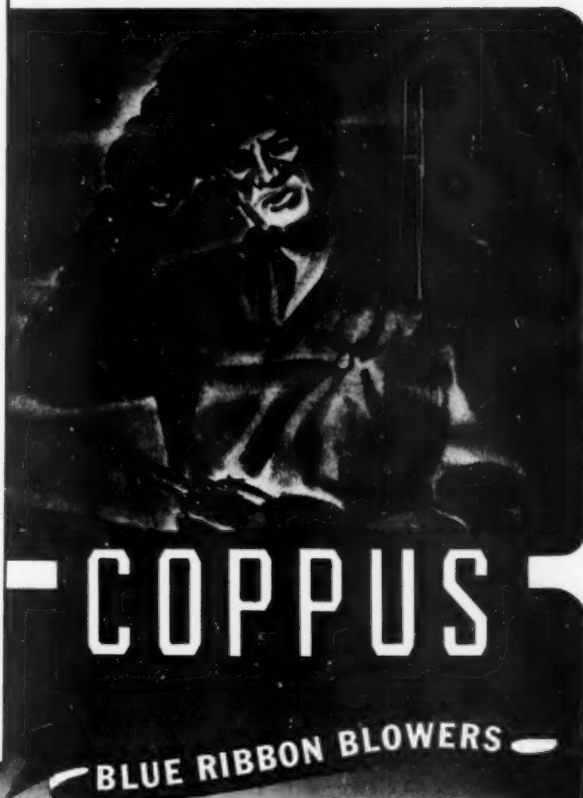
It's bad air that does it. But you can step up production by putting a Coppus Blower on the job to keep the air moving — and keep the men cool.

The kind of air a man works in has a lot to do with how much work he can turn out.

In confined places like shipholds or tanks or drums or boilers . . . or wherever the air is stagnant or hot or full of fumes . . . a Coppus Blower is a *must* for getting first-class work out of the men, all the time.

A Coppus Blower or Exhauster helps avoid sickness and lassitude due to bad air . . . and improves morale, too.

Portable and adaptable for special purposes, Coppus Blowers and Exhausters will have dozens of uses around your plant. The "Blue Ribbon" (a blue painted band) is your assurance of quality performance at lowest cost.



THE BLOWERS THAT PUT MORE MINUTES IN EVERY HOUR

CABLE MANHOLE AND TANK VENTILATORS — BOILER MANHOLE BLOWERS AND EXHAUSTERS — HEAT KILLERS — SHIPHOLD VENTILATORS . . . DESIGNED FOR YOUR INDUSTRY — ENGINEERED FOR YOU

MAIL THIS COUPON

To Coppus Engineering Corp., 122 Park Avenue, Worcester 2, Mass. Sales offices in THOMAS' REGISTER. Other "Blue Ribbon" Products in BEST'S SAFETY DIRECTORY.

PLEASE SEND ME INFORMATION ON SUPPLYING FRESH AIR TO MEN WORKING:

- ☐ in tanks, tank cars, drums, etc.
- ☐ in underground cable manholes.
- ☐ in aeroplane fuellages, wings, etc.
- ☐ on coke ovens.
- ☐ on steam-heated rubber processes.

- ☐ on boiler repair jobs.

COOLING:

- ☐ motors, generators, switchboards.
- ☐ wires and sheaths.
- ☐ general man cooling.
- ☐ around cracking stills.

- ☐ exhausting welding fumes.

- ☐ stirring up stagnant air wherever men are working or material is drying.
- ☐ drying of walls, sheets, etc., after treated with coating material.

NAME

COMPANY

ADDRESS

CITY

(Write here any special ventilating problem you may have.)



**These
Safety Spectacles
Are Worthless!**

What protection do workers get with safety equipment lying on a workbench or in their pocket? Obviously, none! And that's the exact result if protective products are uncomfortable or unsightly . . . if they don't receive full worker approval.

**But These
Guarantee Worker
Acceptance**



***Plus* Exclusive 2-for-1 Feature
Attachable Side Shields!**

This exclusive USSSCO feature offers double-duty protection, yet *cuts inventory in half*. Unique design of this dual purpose frame permits fast change of spectacles from regular to side shield model by quickly attaching side shields. These perforated acetate side shields—that are non-flammable, non-sparking—simply screw into place for jobs requiring side protection.

Entire unit meets all federal specifications for frame construction, structural strength and design, optical qualities, impact resistance, non-flammable qualities and resistance to corrosion.

NOW! A Complete Line of Head and Eye Protection for Every Job!



USSSCO
SAF-I-SPECTACLE
 (Acetate Frame)

30% LIGHTER

Less weight assures more comfort! The new USSSCO SAF-I-SPECTACLE with acetate frame offers the OPTILITE "A" lens with super surface hardness . . . greatly increased scratch resistance. The combined weight of frame and OPTILITE lens is 30% less than ordinary hardened glass spectacles. Even though considerably lighter, the OPTILITE "A" lens will withstand more impact than hardened glass.

Low-cost OPTILITE "B" lens or hardened glass SAF-I-LENS are available if desired. (OPTILITE is USSSCO's registered trade name for exclusive formula optical plastics.)

MODERN DESIGN

Newly styled for greater worker acceptance, the improved acetate frame eliminates possible skin irritation for workers allergic to metal frames. Integral nose bridge features extra strength . . . broad, smooth, rest-easy nose pads . . . four widths for proper, comfortable fit. High positioned temples—in your choice of spatula or riding bow types—permit full view side vision.

Working for You
 to Make Safety Work

For complete information contact your nearest USSSCO sales office listed in the classified section of your telephone directory or write direct to USSSCO General Offices, Kansas City, Mo.

UNITED STATES SAFETY SERVICE CO.

KANSAS CITY 6, MISSOURI

BRANCHES IN PRINCIPAL INDUSTRIAL CITIES
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The **BUY-WORD**

for

*Safety
Shoes*



H411

The Number One dress oxford in the HY-TEST line of more than 60 styles, this Brown Grain Plain Toe Blucher features the Anchor Flange Steel Box Toe, Neoprene Nitrocrepe Sole and Heel, Bol Tan Leather Insole, Isco Nap Vamp Lining, Leather Toe Liner and many other qualities.

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Isco Nap... HY-TEST's scientifically processed one-piece, sweat-resistant vamp lining... produces a smooth, soft, upstanding vamp. Overcomes "bunching up"... shoes retain their good looks after long, hard wear. Isco Nap permits the foot to breathe... perspiration and mildew are retarded. Combined with this outstanding feature in all men's styles is the Lock Stitched Leather Toe Liner that insulates the foot from the steel toe and adds to wearing comfort.

WHY SETTLE FOR LESS?...

Buy HY-TEST and Get the Best!

Wings for Peace and War

THE Fiftieth anniversary of powered flight finds aviation firmly established as a means of transportation. People now cross continents and oceans in aircraft with less apprehension of sudden death than when they boarded trains at the turn of the century.

Airfields, civil and military, occupy vast tracts of real estate. Every city of any size has its airport and the manufacture of planes has become one of the nation's great industries.

It is now possible to reach distant countries in a matter of hours, yet there are more obstacles to travel than ever before. In the comparatively free and easy world that existed before 1914 a bona fide tourist or business man could travel from Paris to St. Petersburg with little more than the minor irritation of the customs investigation to spoil the trip. The police of the various countries were invariably friendly and helpful.

Now, with a large part of the world under dictatorship, travel in many countries is discouraged, if not actually barred. Suspicion and dislike guard frontiers and a large proportion of the world's aircraft is built to carry bombs and machine guns.

In such an atmosphere, the people of the United States—and of all nations of the free world—can find reassurance in the strength of the U. S. Air Force. Among those most familiar with international affairs, there is little doubt that the fast, powerful bombers of the Strategic Air Command, ready to strike back swiftly, have been a restraining influence on would-be aggressors.

Much as we regret the need for spending so much of our technical skill and resources for warlike purposes, it is our insurance for survival. And there can be no doubt that aviation as a whole has profited from military experience, and flying in the future will be faster and safer through knowledge developed primarily for defense.

Military aviation has developed thorough and comprehensive accident prevention programs for both flight and ground personnel, with far-reaching results in the conservation of both men and equipment. In developing these programs, the Air Force has taken advantage of civilian experience in both occupational and traffic safety as well as the more specialized techniques of flight. In turn it has contributed much important data.

And it is significant and gratifying to note that the "Iron Fist," the emblem of the Strategic Air Command, extends an olive branch as well as thunderbolts.

Education's Anniversaries

A SPECIAL issue of postage stamps commemorating the 200th anniversary of the founding of Columbia University is a reminder of the progress of higher education in this country during the past 300 years.

Since Harvard held its first commencement exercises in 1642, the number of colleges and their graduates have increased steadily, with profound influence on every phase of American life.

Scarcely had the founders of New England made provision for their meager physical needs when they began to look to mental and spiritual welfare of future generations. Their spirit is beautifully expressed in these words:

After God had carried us safe to New-England, and we had builded our houses, provided necessities for our livelihood, rear'd convenient places for God's worship and settled the Civil Government, one of the next things we longed for, and looked after was to advance learning and perpetuate it to posterity; dreading to leave an illiterate ministry to the Churches, when our present ministers shall lie in the dust.

That spirit has continued to influence American education, even though its horizons have expanded enormously and denominational influence has waned. Colleges and universities, large and small, established by religious zeal, philanthropy, land grants and the taxes of citizens, have all played their part in the extension of learning and the development of character.

Among those who have left an enduring impression on education was Horace Mann, first president of Antioch College, which celebrated its 100th anniversary recently. Mann saw in education something as broad and deep as life itself, something not only for the professions but for all vocations.

And along with mental enlightenment, colleges should further moral education and bodily health.

A college, Mann believed, should foster cooperation among the sciences. It should prepare "large-minded men . . . in whose capacious souls there is room for many sciences, who can see the relations between these sciences, and wed them together for new and grander achievements."



All photos by U.S. Air Force



Powerful bombers, ready to take off from bases of the Strategic Air Command, are a decided influence for world peace. Here is a story of the ground safety program that is helping to keep them flying. . . .

Strengthening Freedom's "Iron Fist"

By CARMAN FISH

THE IRON FIST of the Free World," symbolized in its crest, describes the Strategic Air Command—the branch of the United States Air Force which has charge of the armadas of heavy bombers ready to strike back in case of aggression by any hostile power.

And, if anybody has any fear of the United States being knocked out in a single aerial Pearl Harbor, the thought of all this striking power on the flight lines of many bases in the U. S. A., England and



CURTIS E. LeMAY
General, USAF
Commander
Strategic Air Command

After 50 years of powered flight, safety is still the prime consideration of flight operations—both on the ground and in the air.

The modern Air Force is continually faced with the problem of employing new and more complex equipment. Operation of this equipment requires maintenance of the highest standards of safety.

Realizing that high standards of ground operation are essential to our air mission, we are unrelenting in our efforts to reduce accidents that decrease our ability to accomplish that mission.

North Africa ought to be reassuring.

But in peace and in war, this fighting strength is subject to attrition by accidents—not merely spectacular crashes but commonplace accidents in shops and hangars and on airfields and highways.

From the beginning of aviation the need for flight safety programs was obvious enough. It soon became evident, too, that safety in the air owed much to the faithful work of the men on the ground. And as planes increased in size, speed and complexity, more and more hours of ground work and miles of travel by Air Force vehicles were required. The men who were keeping the planes flying needed increased protection.



For its achievements in 1951 and again in 1952 SAC was awarded National Safety Council's Award of Honor. Displaying the plaque are Major Willis H. Wood, SAC Ground Safety Chief (left) and Colonel Will L. Tubbs, Assistant for Ground Safety at US Air Force Headquarters, Washington.



Left: SAC bases in continental U. S. A. (Bases in England, North Africa and Puerto Rico not shown). In the preparation of articles for NATIONAL SAFETY NEWS and PUBLIC SAFETY, Editors Carman Fish and Frank Davin visited Offutt, March, Biggs, Carswell and Barksdale AF Bases.

The ground safety program, now ten years old, was born in battle. In the North Africa campaign, traffic accidents along the Red Ball Highway were hampering air operations seriously. A ground safety program, organized under extremely unfavorable conditions, brought encouraging results. The same situation recurred in the Korean campaign. The prevention of ground accidents is now recognized as a continuous command function by the Department of the Air Force. Directing the far reaching program from Air Force Headquarters in Washington is Colonel Will L. Tubbs,

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Refueling at an AF base. Volatile fuel, the lifeblood of aviation, creates one of its most serious problems. All possible sources of spark and flame are eliminated. Careful grounding is vital.

The People Who Get Hurt

By GERALD GORDON, M.D.

When a person appears repeatedly in accident reports, it can't be bad luck alone. Psychiatrists' case histories are often revealing

THAT human beings sometimes do things which are not in their own best interests has been fairly common observation. They overindulge in alcohol and destroy their health, they commit suicide; they wreck cars with themselves inside.

It is within the province of psychiatry to study human behavior and try to find what factors make people misbehave.

During the course of such studies in industry data appeared which indicated that injuries are not always accidental. Review of the literature revealed that many other workers in this field had made similar observations.

Efficient productive work without injury has long been a goal of the Du Pont Company, and industry generally. In our organization, at least, no amount of money, effort or interference with production has been stinted to provide as nearly safe working conditions as humanly possible. Injuries have been progressively fewer over recent decades. We have reached what appears almost to be an irreducible minimum, so far as protecting the individual from the machine by mechanical devices.

On a recent field trip the supervisor was demonstrating to me an

extremely hazardous operation in which sensitive explosive material was passed from one room to another through a window in an explosion-proof wall. The window is covered by a heavy steel safety door. The operator is required to slide the door to one side where a catch holds it fast, so that the automatically returning door can not bump his arm as he withdraws the material thus causing it to detonate.

The safety catch did not work and the door bumped the supervisor's arm as it closed.

Immediate investigation disclosed that the safety release which was operated by a foot pedal had been deliberately jammed with a small piece of metal, which he removed. It could not possibly have happened by chance; in fact, it took the supervisor several trials to figure out how to replace the foreign body and make the release inoperative.

There must be something seriously wrong with an individual who would deliberately court his own death and that of his fellow employees. This individual may not be insane but neither could we call him completely sane.

Exploded Alibis

Man has always excused himself from responsibility for his injuries by saying accidents just happen.

If this were true, then analysis of injuries should show a typical chance distribution curve. Many studies have been made and never show that accidents "just happen."

A recent study of 3,000 occupa-

tional injuries incurred over a two-year period in one of our plants showed 100 per cent of the injuries had been incurred by 35 per cent of the total plant population and almost half of these were distributed among a 7 per cent group who had between two and six injuries each for the two-year period. Sixty-five per cent of the employees had not reported to the dispensary with so much as a scratch.

A few individuals will have repeated injuries, the majority have few or none.

We also find that the same individuals who repeatedly injure themselves, also seem to have many other kinds of difficulties. They have minor sickness absenteeism, they report to the dispensary with minor complaints more than the average, and they have more trouble getting along with their bosses and fellow employees. In addition to getting hurt frequently, they seem to suffer a completely disproportionate share of life's misfortunes generally.

The weight of the evidence shows that some factor other than mere chance is operating in the lives of some individuals.

Dr. William J. Fulton,¹ of General Motors Corp., has studied this problem actively for many years. In a paper before the Industrial Nursing Section of the 32nd National Safety Congress he raised an important question, "Why do men who enjoy equal rights, engage in the same occupation and expose themselves to the same plagues and hazards vary so widely?"—in their performance.

DR. GERALD GORDON is a psychiatrist on the staff of the Medical Division, E. I. du Pont de Nemours & Co., Wilmington, Del. This article has been adapted from a paper presented at the Industrial Nursing Section, 41st National Safety Congress. In it, the author supplements with more data and case histories a previous article published in NATIONAL SAFETY NEWS, February 1953.

His records reveal that 80-85 per cent of accidental injuries and medical complaints are produced by 30 per cent of the employees and that 100 per cent minor sick absenteeism is produced by 40 per cent of the employees.

Dr. Fulton draws some general conclusions from his studies. He reports that "comparison of the plant dispensary records with that of the personnel department, demonstrates that a majority of those making up our basic 30 per cent group produces the majority of problems for supervisors, personnel and safety departments and seem to be 'in everybody's hair.' It is within this group we find the preponderance of neurotics, indigents, irresponsibles and otherwise below par brothers and sisters.... environment, occupation, physical conditions, etc. play the minor role in the incidence of injury and physical complaints during working time.

Inadequate Living

"The major role is played by what we term 'the human factor.' A safe and unsafe worker retain the same status, regardless of environment and occupation. We do not intend to convey the idea that the status never changes. We do, however, point out that, with extremely few exceptions, the status of those individuals who make up our basic 30 per cent group never changes so long as they are left to their own devices. When a change for the better does occur, the reason can almost always be traced to *some personal attention paid directly to the individual.*"

Drs. W. A. Tillman and G. E. Hobbs² report a study of the general social adjustment of a group of 96 motor-vehicle drivers who had been involved in four or more accidents. Sixty-six per cent of this group of repeaters were known to the credit bureau, law courts and social service agencies as having been in some other kind of trouble before, as against a mere 9 per cent of a control group. The authors concluded that an accident record was only one manifestation

of an inadequate method of living.

The State of New Jersey has recently set up a cumulative point system which states, "most drivers—are well-intentioned, law-respecting individuals who know the laws and drive accordingly, seldom becoming involved in either accident or law violation.

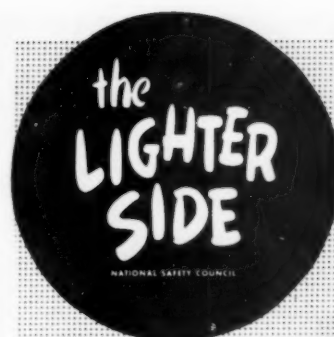
"Unfortunately, there is a small percentage of repeaters, persons with records of previous convictions who display an indifference towards their responsibilities as licensed drivers and whose continued disrespect for law and the safety of others eventually result in serious and, oftentimes, fatal accidents."

We also find in industry persons with records of previous errors who display an indifference toward their responsibilities as employees and whose continued disrespect for the rules and the safety of others eventually result in serious and oftentimes fatal accidents.

The United States Selective Service reports that 20 per cent of the selectees examined during World War II were rejected for military service on the grounds of mental disease. If it be noted that this was a highly selected group of young male adults, the 20 per cent figure would probably approach closer to Dr. Fulton's 30 per cent group if taken from a much broader sample of the general population as we find it in industry.

It must be clearly understood that the term mental illness includes many conditions that are not thought to be mental illness by the layman. The Selective Service figures report less than 1 per cent rejected for straightforward insanity, which is the layman's sole concept of mental sickness.

As serious as it is to have 1 per cent of our young adult population totally disabled through insanity, it is an insignificant part of the larger problem of emotional disorders among our "normal" population.



A recent medical publication points out that there are 100 cases of polio which are never diagnosed as such, for each case which re-

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Rays That Injure Eyes

By A. LINK KOVEN, M.D.

Harmful radiations are produced by the sun and by some industrial processes. Effective protection is readily available

PROTECTION against some types of radiation is one of the important aspects of eye care in industry. Because the terms "light" and "rays" are sometimes used loosely, it seems advisable to review some definitions of radiations.

Radiations, or "rays" consist of transverse vibrations propagated

Dr. A. LINK KOVEN is on the staff of the University of Pennsylvania Graduate Hospital, Philadelphia. This article has been adapted from a paper presented at the 41st National Safety Congress.

in space by electromagnetic vibrations. They vary from short micro-waves to rays of long wave lengths. In order of decreasing wave lengths, classification of radiations is as follows:

1. *Electric Waves*, which consist of several thousands of kilometers (for ordinary alternating current).
2. *Infra red Rays* (heat), exceeding 8,000 Angstrom units (an angstrom being a unit of measurement).
3. *Visible light Rays*, from 8,000-4,000 Angstrom units.
4. *Ultraviolet Rays* (actinic), 4,000-2,000 Angstrom units.

5. *X-rays and Gamma Rays*—average of one Angstrom unit.

Penetration and Absorption

The different components of the eye—the cornea, the lens, and the vitreous body—each has a selective power of absorption. The cornea very effectively filters out ultraviolet rays. The structures of the eye as a whole absorb the entire infrared band down to 15,000 Angstrom units. Visible light passes through, and reaches the retina in the proportion of 94 per cent.

In general, one may summarize the various effects of radiant energy as follows:

1. Ultraviolet rays produce conjunctival and corneal irritation and destruction of superficial layers—like a "sun burn." The visual disturbances are in most cases transitory in nature.

2. Visible light rays do not damage eye tissue, although they can cause considerable visual discomfort.

3. X-rays and x-radiation may produce cataract and, more rarely in larger doses, such grave damage to the eye as would require removal of the eyeball.

4. Electricity can give rise to cataract by means of high tension currents, and at times danger to the inner linings (the fundus) of the eye.

Damage to the Eye

The only element of sunlight that is dangerous is its infrared rays, that is, such that may occur under exceptional circumstances, such as looking at the sun for too long a period of time.

Most of us have experienced seeing small fleeting dark spots in our field of vision, by prolonged observation, especially at sunset. These are of no clinical significance. However, looking into the sun during an eclipse is particularly dangerous.

The effect of ultraviolet rays on the eye is analogous to a burn of the skin induced by focusing the rays of the sun on the skin. However, the skin is protected by a layer of keratin, a physically tough horny material and chemically resistant.

With chronic exposure to ultraviolet rays the skin acquires an acclimatization through increase in the amount of its keratin layer. However, the eye shows no such change in susceptibility with repeated exposures. Following such exposures, in each instance the superficial layers are replaced with normal tissue.

Let us review some of these clinical states and the circumstances in which they occur.

1. *Welder's Flash* — Welder's flash may affect workmen using the electric arc or cutting flame of the acetylene torch. Not only may the welders themselves be affected,

WHEN SUNGLASSES ARE NEEDED

DO'S

1. Wear tinted glasses in exceedingly strong light, heat, and in high altitudes, tropics, and when light is reflected by water, snow or sand—if you are uncomfortable without them.
2. Wear tinted lenses for photophobia when medical consultation advises it.
3. If you wear tinted glasses, use those that:
 - a. Filter out 75-80 per cent of light.
 - b. Neutral lenses that distort color less.
 - c. Lenses which are large enough to cover practically the entire field of view, and which are properly ground and polished.

DON'TS

1. Don't wear any type of filter glass when the illumination level is low, as in evening or early morning, or indoors.
2. Don't wear any type of filter glass for night driving. The glare of an automobile headlight is due to contrast with the surrounding darkness and any type of colored lens reduces overall visibility.

but more often inexperienced apprentices, spectators and especially workmen engaged on another job in the vicinity of the welder.

In the more commonly seen forms, the patient does not stop his work because he feels no pain at the moment of exposure. The symptoms come on some six to eight hours later, when he has a painful sensation as of foreign bodies moving under the eyelids, which often prevents sleep. A very slight conjunctival redness and some slight photophobia are present.

Frequently, the patient states that he has had a sensation such as is produced by a veil before the eyes. Some individuals complain of associated intense headaches and insomnia. If the exposure has been repeated and severe there is intense swelling and inflammation of the conjunctiva and eyelids.

It is very unusual for only one eye to be involved. In such conditions one should try to rule out a foreign body or early infection of the eye. Contrary to the impression often expressed by workers, welder's flash does not occur more commonly at night.

The patient recovers completely in a few days. Although this review is not to cover treatment, it

may be mentioned that adequate treatment exists so that only in the worst case need time be lost.

Welder's flash is to be differentiated from "real flash" which results from heavy discharge of current through a fuse circuit breaker, and so forth and can produce severe burns, especially when it involves the eye.

2. *Sudden Intense Light (Light Stroke)*—This condition may occur in workmen exposed to such bright light as that emitted by molten metals or glowing blocks of metal, or in oxyacetylene arc welders, and in furnace men standing before electric furnaces. Often affected are inexperienced workers at these occupations and, where improper shielding exists, to adjacent workmen at other tasks.

The immediate reaction to this type of radiation is that the worker experiences a "dazzled" state. This is followed by temporary loss of part of the patient's field of vision.

Some five to eight hours later the patient experiences the first sensation of pain and usually describes it as "sand under the eyelids." The conjunctiva becomes red, tears begin to flow, and the patient avoids light, which aggravates the irritation. The eyelashes become glued together by the

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Cleanliness indoors and out is important in a chemical plant. Modern equipment is used to flush off the driveways.

Rating and Recognition

... Incentives to Housekeeping and Safety

By JOHN L. HAWN

WHEN a large industrial company shows a constant improvement in its safety record over a period of years, there is without exception a definite program which has produced such results.

With Monsanto, this has certainly been the case. The accident frequency rate has decreased from a figure of 7.58 in 1938 to 1.42 in 1952. This compares with overall chemical industry figures of 7.93 in 1938 to 5.10 in 1951. Monsanto's figure is second among major companies in the chemical industry.

JOHN L. HAWN is Manager, Personnel Practices, Monsanto Chemical Company, St. Louis, Mo.

Company-wide efforts in a number of channels span essentially the same period. The entire program under the general guidance of Monsanto's central Personnel Relations Department goes into such factors as understanding of the principles of accident prevention, incentives to accelerate safety activities, better communications between plants, company-wide safety programs and standards—all are factors.

It would be almost impossible to single out any one factor as most important. During the years, the independent but related Plant Inspection Program has certainly had a share of the responsibility

of the improvement of Monsanto's record. A brief look at how the program is conducted perhaps will give an insight on the contribution to the safety record.

The primary purpose of plant inspections is to encourage a high standard of maintenance, safety and appearance of all Monsanto plants and to assure that employee facilities are maintained on a high plane. The fact that the program has been in operation for 16 years attests to Monsanto management's conviction that the money spent in this effort produces a good return.

An auxiliary benefit is the training and experience acquired by members of various plant inspec-

ANNUAL PLANT INSPECTION RATING SHEET

Plant _____ Date _____
Inspector _____

Plant Rating: _____

	Maximum Points Allowable	Sub-Standard	Standard	Above Standard	Total Points by Subject
I. General Appearance of Existing Facilities					
A. Administrative Areas	3				
B. Work Areas	10				
C. Storage Areas	2				
D. Service Areas	2				
E. Grounds	2				
F. Improvement	5				
Totals	25	XX	XX	XX	
II. Maintenance of Existing Facilities					
A. Buildings	8				
B. Equipment	2				
C. Roads and Walks	2				
D. Improvement	5				
Totals	25				

III. Sufficiency and Maintenance of Existing Personnel Services*

	Maximum Points Allowable	Sub-Standard	Standard	Above Standard	Total Points by Subject
A. Employment Office	2				
B. Medical or First Aid Facilities	3				
C. Lockers	1				
D. Washing Facilities	2				
E. Availability of Drinking Water	2				
F. Rest Rooms and Toilets	2				
G. Cafeteria	3				
H. Lunch Room or Eating Area	2				
I. Improvement	5				
Totals	25	XX	XX	XX	
IV. Practices					
A. Safety	8				
B. Plant Protection	2				
C. Fire Protection	2				
D. Elimination of Unpleasant Working Conditions	4				
E. Improvement	5				
Totals	25	XX	XX	XX	

TOTAL NUMBER OF POINTS 100

TOTAL POINTS THIS LOCATION _____

*Grade only on existing facilities.

Rating sheet used in Monsanto Chemical Company's plant inspection program. The program has been in operation for 16 years and is credited for much of the improvement in the company's safety record.

tion teams. A spot on the committee is prized by members of higher management.

Naturally in the years since 1937, when this program got underway, many changes have been made. For example, at the outset there was one committee that inspected all plants and traveled by train. The plants were inspected annually. At the present time, due to expansion and growth of the company, the plants have been divided into three groups according to size. Each group is inspected by a different committee every 18 months. The committee is flown in a company plane to visit the various plants.

A procedure for grading the plants has been developed. Originally, a numerical point system was used and these results were announced to all plants. This has been changed and we now select one winner for each group and grade all plants as *Above Standard*, *Standard* and *Sub-Standard*.

The four-man inspection committee is a temporary one appointed by the company president. The membership is drawn from the ranks of upper management to insure that the purpose of the inspection is carried out. For example, a staff department director or a division production manager

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Whenever an award is presented, Monsanto president, Charles Allen Thomas, or his representative is on hand for the presentation ceremonies. In the above picture, Mr. Thomas (center) is taking part in the raising of the inspection award pennant at the Mexico City plant.





The badge which admits this employee to Oak Ridge National Laboratory measures the amount of radiation to which she has been exposed.

It's a Badge . . . A Dosimeter, Too

INDUSTRIAL workers in our atomic energy plants, as well as people in scientific, educational, and industrial research laboratories, and employees in plants where radioisotopes are now being introduced as production tools, must be assured they are not being subjected to over-exposure from radiation.

At Oak Ridge National Laboratory, operated by Union Carbide and Carbon Corporation for the Atomic Energy Commission, an effective solution to this problem has been developed: a combination personnel identification badge and radiation dose measuring device, or dosimeter. An accompanying illustration, an exploded view

of the badge and its component parts, shows the details of construction.

Since the beginning of atomic energy work, the film dosimeter has been used to measure radiation dosage in a variety of forms in practically all installations where people come in contact with ionizing radiation.

A film dosimeter is a device in which a small sheet of photographic film, often a dental X-ray film, is worn. Various filters or screens can be incorporated in the device to measure different types of radiation. The film is changed and developed periodically and the degree of exposure to specific radiation is calculated by analysis

of the developed film. These features are considered desirable in a good dosimeter:

1. Range of the meter should be accurate for exposure less than 0.1 roentgen to 20 roentgens.
2. Measurement of exposure to roentgens of radiation should be independent of the quantum energy of the radiation.
3. The response of the meter should not be producible by agents other than the radiation measured.
4. The dosimeter should be small and light, and permit handling in large numbers by technicians.

In developing a satisfactory film dosimeter, it became clear that no one film emulsion would effectively cover the desired range. Two films were packaged in the same envelope, one film being as sensitive to gamma radiation as possible, and the other relatively insensitive to gamma through a wide range.

Although the fundamental requirements of a good film dosimeter were met, experience showed that there were certain additional desirable conditions, if it were to be used as a badge. In this case it should also be:

1. Difficult to counterfeit or alter.
2. Reasonably resistant to weathering.



The badge-dosimeter is large enough for insertion of two dental size X-ray film packs. Film can be changed easily. The new packet is inserted and the old one ejected automatically. Badge weighs about $\frac{3}{4}$ ounce.

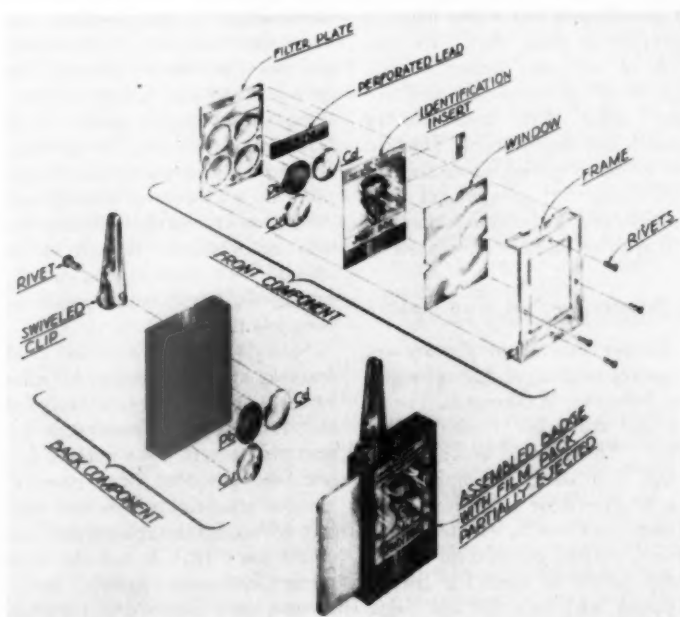
3. Easily codified, so different color codes will admit bearer to specific areas only.
4. Of sufficient size and shape so that identification symbols are easily recognized.
5. Comfortable to wear.
6. Economical and speedy to assemble.

These six conditions are also the major requirements stipulated for a good identification badge. So the problem of designing a dual purpose dosimeter personnel identification badge became a matter of adequate engineering to assure the best results.

The combination badge designed by the Laboratory Protection Division and Health Physics Division of Oak Ridge National Laboratory weighs, when fully loaded, about $\frac{3}{4}$ ounce. It measures $1\frac{1}{2}$ by $2\frac{3}{16}$ inches, and slightly more than $\frac{1}{4}$ -inch thick. The badge case is constructed of cellulose acetate butyrate plastic and is held to the clothing by a metal alligator clip. Filters consist of disks of lead, cadmium, and electrolytic copper. Cadmium and copper were selected specifically since they provide one means of

determining neutron exposure values.

As seen in the exploded view, the front component consists of a plastic frame, plastic window, photograph with identification insert, and the plastic filter plate. Imbedded within the filter plate are the three metal filters, the mirror image of which also appears on the back component. The filter plate also includes a lead piece in which is perforated the employee's identification number.



Exploded view of badge, showing component parts and details of construction. Filters consist of disks of lead, cadmium and copper embedded in the filter plate. Case is of cellulose acetate butyrate plastic.

January 4, 1954

TO HUNDREDS of valued friends throughout the country, in fact, throughout the world, I want to express my deep appreciation for their thoughtful and kind holiday greetings.

This is my way, inadequate as it is, to reciprocate their good wishes.

Ned H. Dearborn

Soft X-rays passing through these perforations permanently identify the film. The front is locked into the back by use of hooks on the legs of the front piece. To minimize the possibility of tampering, the assembly is bonded with a cement. After each component part has been prepared the total assembly time required is less than one minute.

The badge is large enough for the insertion of two ordinary dental-size ($1\frac{1}{4}$ x $1\frac{3}{4}$ -in.) film packs. An important feature is the ease with which the film can be changed. The new packet is simply inserted and the old one is automatically ejected.

With the new system, two badges one red, the other black, are issued to each person at the Laboratory. One badge will always be in the possession of the employee while the other is at the Laboratory for processing. The Laboratory guards admit an employee to the Laboratory area when the color of his badge coincides with that assigned for the current week.

The advantages benefit everyone concerned. The single badge processing is quicker and easier for the Health Physics people who check the badges each week. The badge wearer benefits since he is required to wear one badge instead of two, and is required to turn in the badge only once a week instead of daily. Also, the new badge is lighter than most metal meter badges.

Has Safety "Just Growned"?

Essays in the Philosophy of Safety — I

By NORMAN MOZLEY

TOPSY, you may remember, was the child in *Uncle Tom's Cabin* who was so completely unaware of the nature of parentage in general and of her own parentage in particular that she allowed as how she had "jes' growned." She was unable otherwise to explain her existence.

Like Topsy, the profession of safety engineering is relatively young. Can it be said that, like Topsy, safety engineering has just growned, without stopping to achieve general agreement regarding where it came from, where it is headed, and how to get there?

Many people have devoted their careers to safety—some of them with notable distinction. In the face of this, can we say that safety has just growned?

Among the leaders of the safety movement have been people of intelligence, vision and deep understanding. Knowing this, can we say that general agreement is lacking on such questions as the aims of safety work and the methods of accomplishing them?

We can. We cannot say that knowledge is lacking, but we can say that knowledge is not yet complete. Complete understanding and agreement among all the people in the profession are frequently lacking. And we can say this with no discredit to the leaders of safety, past or present.

Let us jump for a moment from the philosophy of safety to the philosophy of government and see if democratic government is not also something which has just growned. When we get out of our immediate field of safety into the

widely understood (and misunderstood) field of government, its aims, and means of accomplishing these aims we can see that government has just growned. We can convince ourselves of this by thinking back to the times of tribal governments and tracing the changes through small monarchies, large monarchies, empires, and down to these days of co-existing popular democracies and totalitarian dictatorships.

We can trace the growth of law from Biblical times through the Romans and the English and down to its present state of imperfect development. We can do the same with social philosophy and the philosophy of the state.

We can look about us and see other countries with worse forms of government and worse ideas of government than ours. We can look at our own national, state and local governments and see how sadly they need further growth and improvement. The law, the forms of government, and the philosophy of government just growned, and we hope that they are still growing and not retrogressing.

Science Is Not Complete

To say this about government bespeaks no lack of due reverence for Jefferson, Washington, Franklin and the other Founding Fathers. These men accomplished much, but their accomplishment was to contribute to the process of growth and not to create a full-grown, perfect government for the entire world or even for the 13 Colonies and they did not begin their work in a vacuum, but with a rich background of history and political thought.

There have been many great contributors to our knowledge of physics and chemistry. Through their contributions, our knowledge of the universe has expanded until we are able to split the atom and to fuse it. Our science is not complete, but it has grown faster than our social organization. Now that we have access to atomic energy, we have serious doubts whether civilization is sufficiently grown up to be able to use it properly. We are practically certain that we will not be able to use it for constructive purposes only.

Intuition or Judgment?

In short, any human institution or program, whether it be government, study of the physical universe, developments of productive processes, or development of safe environments and habits, is something that becomes good—or at least improves—only by growth. Whatever its present status, it got there by a process of growth and development. As individuals, we may be fortunate enough to be able to contribute to the growth, but we do not direct, regulate or complete the growth.

Safety's growth is a story of learning and achievement by safety leaders. It is also a story of the following of leadership by countless others. The growth has not been preceded by a comprehensive blueprint which was subject to no future refinement and correction. That is not the way human institutions grow. The rationale, the *raison d'être*, the philosophy, is implicit in the growth, but it is undefined, unformulated, and unstated. It is a mass of ideas

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whose relationship and significance has not been studied.

The formulation of the philosophy follows the fact and yet provides a tentative basis (or at least a point of reference) for the extrapolation of further plans. Unfortunately, there is a strong tendency to base further plans on intuition rather than upon such a basis of sound judgment.

Superficial Thinking

The communists are an outstanding example of a group of fuzzy thinkers, who, ever since 1848, have been following a pre-planned, misguided approach toward an unwisely-chosen goal. And all that they have wound up with is dictatorship in several countries, principally Russia, which resembles their original aims only in the propaganda stories issued by the dictators. Despite their zealous efforts to control the direction of their governments' growth, these governments have "grewed" perversely.

What happened was that while they were frenziedly pursuing a false ideal, they lost some of the growth which they had earlier, and they have found themselves ultimately with governmental forms which, although they exist in an age of machinery and atoms, are medieval (or Babylonian) in character.

We do not plan social changes or social institutions and then proceed to carry out the plans to the letter. We do well to speculate intelligently about the future of social institutions. What we do plan are small steps in the growth of institutions.

For example, workmen's compensation laws are just a step in the safety movement—a step that had to come, a step for which many people deserve partial credit, and a step which was more than 50 years in the taking. These laws were not alone, or even primarily, the result of philosophical planning. Primarily they were the result of a need, and their operation since their enactment has done much to shape our present

safety philosophy—also our social philosophy.

A philosophy attempts to rationalize and explain the institution as it exists—to demonstrate the institution's logical basis and its consistency. It also attempts to outline the ideal form of that institution by revealing its existing points of inconsistency, where further refinement and growth are needed. But the shortcomings of an institution are usually noticed by many of the people directly involved (usually by those adversely affected) long before the social philosophers become aware of the problem or devise a true solution.

These people may notice that something is wrong (they aren't sure what) and on the basis of superficial study they propose one or more solutions. Then action is taken on the basis of the controlling opinion (which may or may not be the majority opinion). That is why society's corrective actions almost invariably overcompensate for the original trouble. The tendency is to go off half-cocked and to misfire.

Our program would be much sounder if we could take time to define our program before choosing our remedies and to evaluate our remedies before putting them to work. In safety work, we have a better chance to do this than has the statesman (or politician) who is subject to intense pressures from all sides. Often the politician has little choice but to give the most grease to the wheel that squeaks the loudest.

We do not know enough about

the precise ends we want to achieve, or enough about the exact effects of the various possible means of attaining them, to formulate a detailed blueprint for all future actions. Our concept of the nature of our goals themselves will broaden and become more refined as we work toward them. Misconceptions in our plans will become apparent to us (if we have the intellectual honesty to recognize them, as most fanatical planners do not).

Unexpected Results

Unexpected and undesirable results of the means selected to achieve our goals will also require policy changes. Changes in our environment (as in the state of our productive arts, for example) will require changes in policy and practice—and perhaps in our goals, unless we want to resist changes of environment and want to hold everything in the status quo.

A century ago, the philosophy which might have been found underlying our "safety" ideas and practices was that accidental injuries were the will of God and therefore as unpreventable as the tides and the seasons. To entertain the idea of interfering with God's will was, of course, irrelevant. It is not suggested that everyone felt that way a hundred years ago or that nobody feels that way now. It is suggested that the idea was more general then than it is now and that it may well have been the predominant safety philosophy of the day, especially with the concurrence or encouragement of those who were interested in avoiding responsibility for injuries. The injured worker did not want to accept blame, and management did not want to assume responsibility. So it was accepted as God's will that, of 50 machine operators doing identical tasks, one should be singled out for injury (today—and another one tomorrow)!

Eventually, the need for preventing injuries, and the facts that

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★ ★ ★ ★ ★ ★ ★ ★
In this series of essays, the author hopes to contribute in some degree to the formulation and refinement of our philosophy of safety, which contains many points on which there is still lack of agreement. Subsequent essays will discuss in detail some of the problems outlined here.—The Editors
★ ★ ★ ★ ★ ★ ★ ★



Traffic dispatcher holds up automobile traffic to permit scraper to hurry through on return trip to loader. Motor grader at right is removing mud from road to provide safer going for scrapers. Left: Ash silo for boiler plant has guarded ladder but no guard rail on suspended scaffold.

Hazard Hunting

with the Safety Engineer

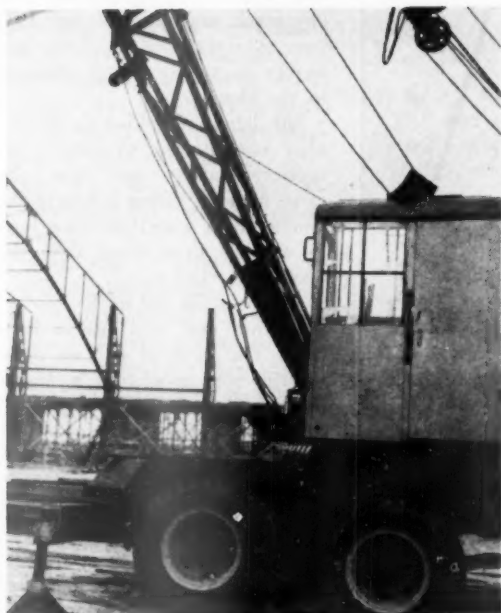
HUGE MILITARY construction programs of the U. S. Army's Corps of Engineers throughout the world are a constant challenge to the safety engineer. He must be constantly on the alert for hazards and eliminate them. He must be tactful as well as forceful.

To some degree the safety work in the construction industry provides a greater variety of hazards since the forces of Nature play in the picture—wind, rain, snow, heat, cold—all have a greater effect on construction than in any other field of industry. High winds are capable of destroying a structure during its construction if safety principles are not adequately provided for. Rain may create a slippery footing. Snow can put a tremendous load on an unfinished structure.

A tour of construction in the Philadelphia District of the U. S.



Crane with built-in boom stop that extends from top of cab to the first section of the boom.



This crane has an improvised cable boom stop that will prevent the boom from rising above the critical angle.

Army's Corp of Engineers demonstrates how the safety engineer searches for those situations that are capable of producing accidents. Once found, the necessary steps to correct the unsafe conditions are initiated.

Let us accompany the safety engineer on a routine inspection tour. The projects visited are typical of those scattered throughout the Philadelphia District area of the U. S. Army's Corps of Engineers which includes the States

of Pennsylvania, New Jersey and Delaware.

The first stop is a large boiler plant rapidly nearing completion. A good example of preventive safety work is apparent in the outside inspection. The boiler plant is a coal-fired stoker type on a large scale and is equipped with a silo for storing ashes. The silo is located outside the plant proper so that ashes can be chuted out the bottom of the silo into trucks for disposal. A ladder running up the

side of the silo is inclosed with a steel lattice work protection. This was incorporated while the project was in the design stage.

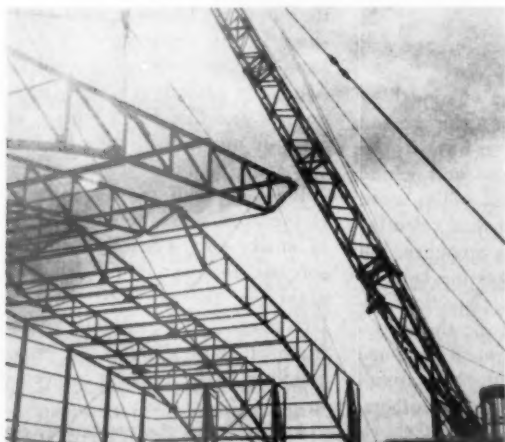
This is a noteworthy feature of the safety program. All plans and specifications are reviewed by the safety engineer before construction work begins. At this stage the best preventive safety work takes place. When plans and specifications have been reviewed the safety engineer recommends the incorporation of safety features that will reduce the accident potential.

At this same point of inspection, however, the safety engineer noted an unsafe practice. Near the top of the ash silo, he noticed a scaffold was suspended below an extending appurtenance. The scaffold was unsafe because it was not equipped with a guard rail. The safety engineer made a note to have this condition corrected.

The next stop was an earth-moving project involving the moving of millions of cubic yards of earth to provide proper grade for the buildings to be constructed on this site. Huge earth-moving scrapers are hurrying from one section of the project where they pick up a load to the distant section where the load is spread. The pace is fast because the scrapers have to keep up with the earth-digging and loading machine which can load a

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Guy wires bracing steel members of structure under construction protect against wind damage.



Setup for accident—scaffolding with unstable supports and no guard rails or toeboards.





Valentine's Day

(Fiction)

By BILL ANDREWS

February 14, 1954

TOP ITEM in the mail basket this morning was an anonymous hand-drawn comic valentine decorated with bleeding hearts and a caricature of me in over-sized goggles. The text read:

*Your eyes are four, you awful bore,
And they'd be more if, in the store,
You could buy others to stop the gore.
You are a mug and quite a lug,
But you still slug at our accident bug,
So here, doggone you, is a grateful hug.*

It made a pretty good start for the day, and also had the virtue of reminding me that I hadn't

yet bought valentines for Sue and the kids.

But it reminds me of something else, for I know the drawing and lettering style, and so I know who sent me the valentine—and behind that is a story worth telling now.

The gal who sent that valentine doesn't work for us anymore, but she used to. She was the belle of the drill-press bank. Not the typical shop belle—not the sleek, hip-swaying, over-decorated specimen who dates the field. She didn't dress any better than the others, but she made her slacks and short-

sleeved skirt look better. She didn't use much makeup, but her face was a bright spot of cheer and beauty on a grey winter morning in the shop.

She dated around for six months after she started working—not indiscriminately—and then she came up with a ring belonging to young Mike, a section straw boss in another department than the one she worked in.

May was like her name—pretty, sweet and gay and just a little cool. The kind of gal we older married men could look at appreciatively but without temptation. I keep telling personnel every department should have one like her for morale purposes, but Mac replies by telling me that their high turnover rate makes them poor risks. Also, most of them are conceited and a constant irritation to all other women in their neighborhood.

Anyway, May was good for my morale, and I used to kid her a little. She could hold her own, all right, and she kidded me back just as much as I kidded her.

My first hassle on a more serious level with May came over shoes. She showed up one morning in a pair of open-toed sandals. I remonstrated with her and she just wiggled her big toe at me. "Pretty, isn't it," she said. "I'm one gal whose toes are pretty enough to look good even without the nails painted. Mike likes 'em, and so to heck with you, Mr. Safety Man. There's nothing in the rules says I have to wear safety shoes in this department. I don't handle heavy castings. I drill six holes in a plate that weighs seven ounces, and that I can bounce off my bare piggies without a bruise."

I made all the obvious answers—the danger of meeting a truck in the aisle, or stubbing on a pile of stock, etc. To which she responded that she could dance all night on the crowded floor at Dreamland Park without getting trampled, and would I please go peddling advice to them as needed it.

I didn't win the argument, but

a few days later a maintenance man over-lubricated her machine and a large glob of grease dropped on an exposed and most handsome big toe. May has always suspected me of conspiring with the maintenance man on that, and she's right, of course. But anyway she went back to sensible shoes promptly.

When she got Mike's ring, we had a tougher go-round. The safety committeewoman in her shop (who had some hopes for Mike herself) promptly reported in writing that May was wearing the sparkler at her work. Her foreman said he had mentioned it but he didn't want to get tough about it, and May was stubborn on her right to wear her man's ring.

I called her in myself and gave her a lecture, while she just smiled and told me, in all graciousness, to go peddle my papers. "I'm quitting when I marry Mike in the fall," she told me. "If you don't like it, I'll quit now and go to work down at the cafe. But this ring means a lot to me, and I'm not taking it off just because it makes you nervous, or because that Jeannette is jealous of it."

Harry figured out an answer on that one. Mike's team won the bowling championship and we got Mike to have the machine shop set his personal award emblem on a pin, and Mike gave it to her to pin to her shirt. So she, at his request, began wearing that instead of the ring at work. Mike must have told her, too, that he wanted a wife with ten fingers to mend his shirts.

Finally, three weeks before she was to get married, May was reported for failing on three occasions to wear her cap at her work. I knew it would be futile to belabor to her about it, because she wouldn't be afraid of any disciplinary action. I mentioned it to Mike, but he shrugged. "I know," he said. "But look, guy, I love that gal, and I don't want any fights with her now. Chances are she'll not get hurt, and then she'll be gone, and my responsibility, not yours."

What's Your Worry?

SAM came up to me after a safety meeting the other day and asked, "Why are you all the time worrying about accidents?"

"So what if I have an accident? If I get killed I have nothing to worry about. If I don't get killed, then I have only two things to worry about. Will I get well or will there be a permanent disablement?"

"If I get well, I have nothing to worry about. If I get permanently disabled, I have only two things to worry about. Will I be able to get around or will I have to stay in bed?"

"If I can still get around, I have nothing to worry about. If I have to stay in bed, I have only two things to worry about. Can I get enough compensation or sue somebody for enough to support me for life or will I still have to work?"

"If I can get enough in compensation or by suing somebody to support me the rest of my life I have nothing to worry about. If I have to go to work, I have only two things to worry about. Can I do the work with my head or do I have to use my body?"

"If I can work with my head, I don't have anything to worry about. If I have to work with my body, I have only two things to worry about. Do I have enough members of my body left after the accident so that I will be able to use them in a job, or am I short a few?"

"If I have enough parts left to do a job, I have nothing to worry about. If I haven't, I have only two things to worry about. Can I find something else to do for a living, or will I starve to death?"

"If I starve to death, I have nothing to worry about. If I can find something else to do to make a living—I never had anything to worry about in the first place."

"So, why are you all the time worrying about accidents?"
I think Sam has flipped his lid. How about you?

ROBERT D. GIDEL, Senior Engineer,
Industrial Department, National Safety Council

On all matters concerning the handling of beautiful women, I have only one reliable advisor, my wife, Sue. So I put it up to her.

Now Sue has a double advantage. Not only was she and is she a beautiful gal herself, but also she was our plant nurse and has cleaned up after more than one scalping accident.

Her advice was simple. "Invite the kids to dinner Thursday."

Then, when the two of them came to the house at 6:15 Thursday night, Sue made profuse

apologies about being late, and she asked May to help her out. While Mike and I smoked in the parlor, I could hear the murmur of woman-talk and dish-rattling in the kitchen. I heard Sue say, "Give it 30 seconds on high," and then the Mixmaster started whirring. Almost immediately it stopped.

There was more murmuring and then the washing machine motor was turned on briefly. Then Sue went to the bedroom, and returned carrying something to the kitchen.

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ANHYDROUS AMMONIA

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425 N. Michigan Ave., Chicago 11, Ill.

1. Under normal conditions of temperature and pressure, anhydrous ammonia is a colorless gas having a strong unmistakable odor. It is produced commercially by direct synthesis from nitrogen and hydrogen. Anhydrous ammonia has the following physical properties (A later publication will discuss the properties and hazards of a water solution of ammonia, *aqua ammonia*):

Molecular weight17.032
Boiling point (760 mm of mercury)
-33.35°C (-28°F)
Melting point (760 mm of mercury)
-77.7°C (-107.9°F)
Critical temperature (Exists only as a gas above this temperature.) 132.4°C (270.3°F)
Critical pressure1657 psi absolute
Latent heat of vaporization (Heat necessary to vaporize one pound of liquid

This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety Codes, federal laws; insurance requirements; state laws, rules and regulations, and municipal ordinances. Reprints of Data Sheets are available from the National Safety Council.

-33.35°C, 0.00 pressure.) 589.3 BTU per lb.
Specific gravity (Dry air, 32°F, 760 mm of mercury) 0.5970
Specific gravity of liquid @-33.35/4°C -0.6819
Flammable limits

(air)*** 16-25% by volume
(oxygen)** 15-79% by volume

2. The relation between temperature and vapor pressure, density, specific gravity, and latent heat of vaporization of liquid anhydrous ammonia is given in Table I. Under ordinary conditions ammonia is a very stable compound. At temperatures of the order of 450 to 500°C (840 to 930°F), it begins to decompose to form nitrogen and hydrogen.

3. The gas, if mixed with air in the proper proportion, will burn. The flammable limits of this mixture were reported by the Underwriters' Laboratories to be 16 to 25 per cent by volume. This range has for years been accepted by the National Fire Protection Association, the Manufacturing Chemists' Association and other interested organizations. The U.S. Bureau of Mines has reported six other tests giving similar results. However, a third equally reliable laboratory, has reported limits of 15 to 28 per cent*, using dried gas 99 per cent ammonia. In the interest of maximum safety it is wise to keep the

Table I

Temperature	Vapor Pressure (psig)* absolute	(atmos)	Liquid Density (lb. per U.S. gal.)	(gm/ml) equal numerically to specific gravity	Latent Heat of Vaporization (gm-calories per gm.)	(Btu per lb.)
-33.35°C (-28°F)	0.0	1.00	5.69	.682	327.4	589.3
-28.89°C (-20°F)	3.6	1.24	5.64	.675	324.2	583.6
-23.33°C (-10°F)	9.0	1.62	5.59	.669	320.2	576.4
-17.78°C (0°F)	15.7	2.07	5.53	.663	316.1	568.9
-12.22°C (10°F)	23.8	2.62	5.47	.656	311.7	561.1
-6.67°C (20°F)	33.5	3.28	5.41	.648	307.3	553.1
-1.11°C (30°F)	45.0	4.06	5.34	.641	302.7	544.8
4.44°C (40°F)	58.6	4.99	5.28	.633	297.9	536.2
10.00°C (50°F)	74.5	6.07	5.21	.625	292.9	527.3
15.56°C (60°F)	92.9	7.32	5.14	.617	287.8	518.1
21.11°C (70°F)	114.1	8.76	5.08	.609	282.5	508.6
26.67°C (80°F)	138.3	10.41	5.01	.600	277.1	498.7
32.22°C (90°F)	165.9	12.29	4.94	.592	271.4	488.5
37.78°C (100°F)	197.2	14.42	4.87	.583	265.4	477.8
43.33°C (110°F)	232.3	16.81	4.79	.573	259.3	466.7
48.89°C (120°F)	271.7	19.49	4.71	.565	252.8	455.0
54.44°C (130°F)	315.6	22.47	4.63	.555	246.1	443.0
60.00°C (140°F)	364.4	25.79	4.55	.545	238.9	430.0

*For psia add 14.696

Adapted from U. S. Bureau of Standards Circular No. 142 *Thermodynamic Properties of Ammonia*—Published 1923

**"Determination of Explosion Limits of Gases," H. A. J. Pieters et al; *Fuel in Science and Practice*, Vol. 26 No. 3, 1947 pages 80-81.

***"Limits of Flammability of Gases & Vapors" Bulletin 503, U. S. Bureau of Mines.

***The Fire Hazards of Ethane, Propane, Butane, and Ammonia as Refrigerants." *Miscellaneous Hazard Report No. 1130*. Underwriters' Laboratories, Dec. 1923.

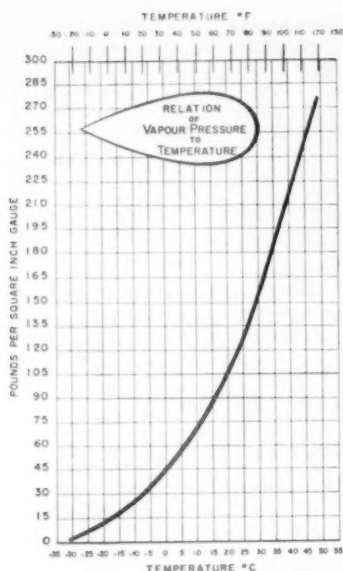


Figure 1. The information in this chart supplements that given in Table I.

mixture enough above or below the flammable limits so that fluctuations will not bring the mixture within the flammable range. In the presence of iron, the mixture will ignite at 651°C (1203.8°F). When iron is not present the ignition temperature is much higher: above 850°C (1562°F). Oil vapor, introduced through compressors for instance, will increase the fire hazard somewhat.

4. Ammonia, air mixtures are difficult to ignite. They require both a large and an intense source of ignition and a high concentration of the gas. However, there have been several severe flash fires and a few severe explosions at breaks in compressors, receivers and condensers and at least one

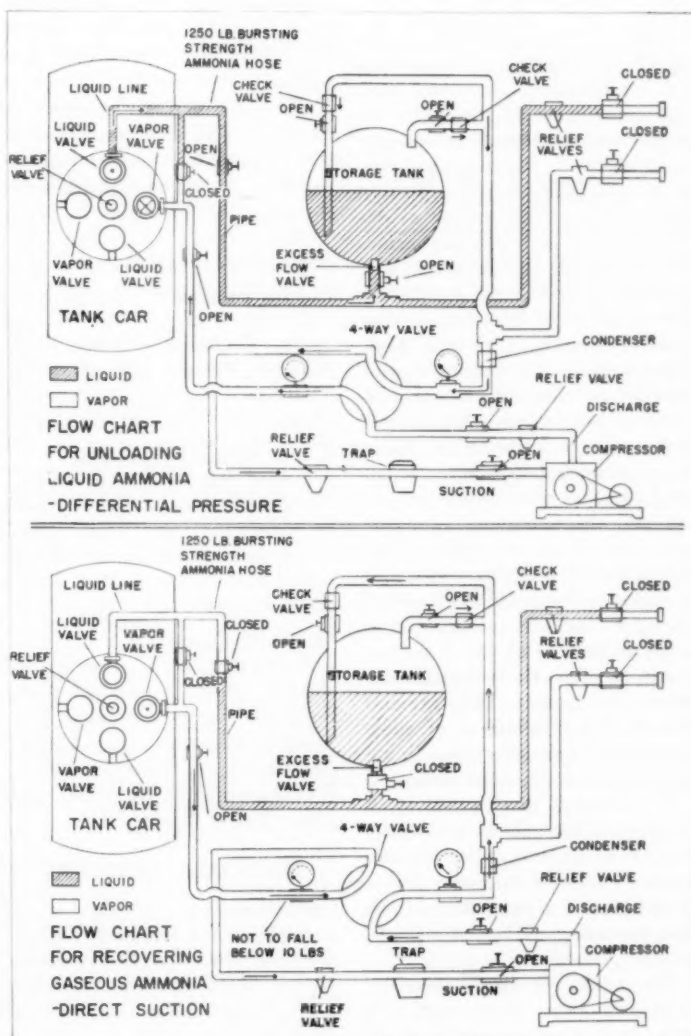
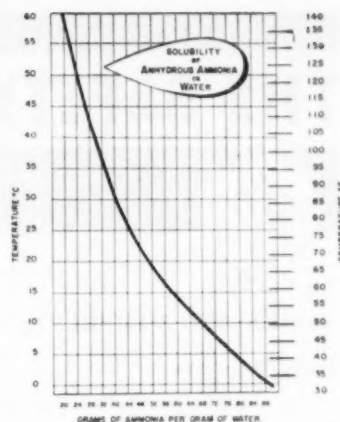
Figure 3. Typical unloading setup using differential pressure, mentioned in Par. 26, 30, and 31. Upper drawing shows arrangement of open and closed valves for differential pressure unloading; lower drawing, valve arrangement for unloading residual vapor by direct suction. Bypass valve between the liquid and vapor lines to the tank car is normally kept closed. It is opened only when pressure on either side of the tank car check valve is to be equalized.

Figure 2. This chart (Par. 6) shows the relationship between weight of ammonia in hundredths of grams per gram of water to the temperature. Since the relationship shown here is that of unit weight per unit weight the values shown are the same for pounds of ammonia per hundred pounds of water.

severe explosion involving a large ammonia storage container.

5. Most common metals are not affected by anhydrous ammonia; however, when mixed with very little water or water vapor, both

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to Safety Men

Compiled by Ruth Parks, Librarian, NSC

BOOKS AND PAMPHLETS

Toxic Solvents

Toxic Solvents by Ethel Browning, published by Edward Arnold & Co., London, 1953, 168 plus VIII pages, \$4.00. United States distributors, St. Martin's Press, 103 Park Avenue, New York 17.

THIS LITTLE HANDBOOK is designed specifically for people who are not primarily concerned with the maintenance of the health of people who are handling solvents in industry. It eliminates entirely such trappings of the scholarly type of text on the subject as descriptions of animal experiments, discussions of case histories and bibliography. For approximately 150 of the most common solvents used in industry it gives in summary form the properties significant for its industrial use, the most common types of use in industry, the sources or preparation, something of the toxicity and the symptoms of acute and chronic poisoning and the maximum allowable concentrations as recommended by the industrial products and health research committee of the Imperial Chemical Industries Limited and as recommended by the American Conference of Governmental Industrial Hygienists. There are also directions for treatment of acute and chronic poisoning given in abbreviated form in most instances.

In addition there is a short chapter on the effects of various solvents in general on the various organ systems of the body and a short chapter on prevention of solvent poisonings. The latter is extremely general.

For works managers, chemists, plant engineers, safety engineers and foremen this assembly of re-

liable information in a very compact and readable form should be extremely valuable.

F. A. Van Atta

Chemicals

Butadiene. Published by Manufacturing Chemists' Association, 246 Woodward Bldg., Washington 5, D. C. 1953. 16p. 25c. (Chemical Safety Data Sheet SD-55).

Color

Safety Color Code for Marking Physical Hazards and Identification of Certain Equipment. Published by American Standards Association, 70 East 45th St., New York 17, N. Y. 1953. 11p. 50c. (ASA-Z53.1-1953).

Power Presses

Transcript of Fourth Annual Spring Technical Meeting. Published by Pressed Metal Institute, 2860 East 130th St., Cleveland 20, Ohio. 1953. 166p. \$5.00.

U. S. Military Services

United States Navy Safety Precautions. Published by the Navy Department, 1953. 501p. Available from Superintendent of Documents, Washington 25, D. C. \$3.00. (OPNAV 34PI).

Waste Disposal

Neutralization of Acidic and Alkaline Plant Effluents. Water Pollution Abatement Manual. Published by Manufacturing Chemists' Association, 246 Woodward Bldg., Washington 5, D. C. 1953. 13p. 25c. (Manual Sheet-W-3).

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Serious Poisoning by Hexachlorocyclohexane. By E. Danopoulos. *AMA Archives of Industrial Hygiene and Occupational Medicine*. Dec. 1953. p. 582.

Commercial Vehicle

Gimmicks, Bonuses Bring Safety Award to Laundry. *Fleet Owner*. Dec. 1953. p. 44.

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Fatal Accidents in the Electric Light and Power Industry. By S. H. Young. *Edison Electric Institute Bulletin*. Nov. 1953. p. 429.

Fatigue

Fatigue—Measurement and Reduction. By Lucien Brouha. *Industrial Medicine and Surgery*. Dec. 1953. p. 547.

Fire Protection

Fires Are Still the "Menace." *The Plant*. Dec. 1953. p. 54.

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Rx for Preventing Handling Accidents. *Flow*. Dec. 1953. p. 61.

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Acute Inhalation Toxicity of Beryllium. By Herbert E. Stokinger and others. *AMA Archives of Industrial Hygiene and Occupational Medicine*. Dec. 1953. p. 493.

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Occupational Skin Problems. *Industrial Medicine and Surgery*. Dec. 1953. p. 581.

Synthetic Rubbers—Their Chemistry and Dermatological Aspects. By George E. Morris. *AMA Archives of Industrial Hygiene and Occupational Medicine*. Dec. 1953. p. 540.

Toxicity of Silica. By Lester D. Scheel and others. *AMA Archives of Industrial Hygiene and Occupational Medicine*. Dec. 1953. p. 564.

Vinyl Plastics—Their Dermatological and Chemical Aspects. By George E. Morris. *AMA Archives of Industrial Hygiene and Occupational Medicine*. Dec. 1953. p. 535.

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PERSONALS



Gardner to Direct Safety And Suggestion Program

H. V. GARDNER, safety director for the Glass Container Division of Owens-Illinois Glass Co., has been assigned to direct a safety and suggestion program for the entire company.

A native of Mitchell, S. D., and a graduate of the University of Illinois, he served as athletic director and coach at schools in his native state and in Illinois before he joined the glass company in 1943.

He handled personnel and industrial relations work for the company and one of its subsidiaries and in 1944 was assigned to coordinate safety activities for the Glass Container Division.

In his new position Mr. Gardner will coordinate the safety and employees suggestion programs in the company's 30 plants.

James H. Forgie Retires

JAMES H. FORGIE, safety engineer for the Mining Division of Armco Steel Corp., retired December 31.

Mr. Forgie has spent almost his entire career in mine work and has had more than 25 years of service with Armco. He has done outstanding work in first aid instruction, and in 1936 received a permanent certificate from the U.S. Bureau of Mines in recognition of his achievements in this field.

He is succeeded as safety engineer by Alex Kelemen, training advisor and suggestion coordinator for Armco's mining division.

Mr. Kelemen joined Armco in

1934 as a coal loader. Since that time he has had many assignments, among them fireboss, section foreman, conveyorman, and loading machine operator.

He was made training advisor of the mining division in 1947, and in 1948 was also appointed suggestion coordinator.

STUART W. GURNEY has been appointed assistant vice-president in the home office loss prevention department of Liberty Mutual Insurance Company, Boston.

Gurney started with the company in 1924 as a service engineer in Boston and in 1932 became research engineer in the home office. In 1945 he became director of the industrial hygiene section of the loss prevention department.

A graduate of M.I.T., Mr. Gurney was also a director of the American Industrial Hygiene Association.

WILLIAM B. GREENE has been appointed personnel manager of the Union Steel Castings Division of Blaw-Knox Company, Pittsburgh, Pa. Mr. Greene joined the Union Steel Castings Division in May 1942. Since 1949 he has been the division safety supervisor, which duties will be included in his new position. Previously he was chief inspector and in charge of X-ray testing.

DR. CHARLES R. WILLIAMS of Wellesley Hills, Mass., has been appointed director of industrial hygiene at Liberty Mutual Insurance Company, Boston. He started with the company in 1934 doing dust analysis in connection with silicosis and gradually expanded to the field of industrial hygiene.

POSITION WANTED

Safety Engineer with nine years chemical plant experience and ten years in industrial and construction desires position in Northeastern United States. No traveling preferred. Address Box 437, NATIONAL SAFETY NEWS.

He has been director of applied research and has been particularly concerned with atomic energy, noise and air pollution.

Dr. Williams is a graduate of Union College, Schenectady, N. Y. and received his M.A. and Ph.D. from Harvard University. He is assistant professor of Industrial Hygiene, Harvard School of Public Health and a member of the American Acoustical Society.

E. E. SEYFARTH retired December 31, after more than 50 years of service with the Chicago and Western Railroad Company and the Belt Railway Company of Chicago. He was supervisor of safety for both railways.

RICHARD A. NEWTON succeeded Mr. Seyfarth, effective January 1.

Obituary

DONALD T. LANGHORNE

DONALD T. LANGHORNE, director of Accident and Fire Prevention Programs, Region 3, General Services Administration, died in his Washington, D. C. office September 30, 1953. He was 48.

Mr. Langhorne had been active in accident prevention and fire prevention work for more than 11 years, and had been in Federal service since 1934. He graduated from the University of Pennsylvania in 1930.

For the next four years he worked as an architect with a New York City firm. In 1934 he joined the staff of the Supervising Architect's Office, in Washington. There, he assisted in the design of many Federal buildings, including the U.S. Embassy in Paris, and the Post Office Building in Washington.

Mr. Langhorne was a member of the American Society of Safety Engineers, Buildings Management Association, and other societies.

Surviving are his widow, Mrs. Dorothy Langhorne; a daughter, Nancy; and a son, Donald.



Ground Safety Conferences are helpful in the exchange of experience and information. Above are representatives of the 15th Air Force at March AFB, Calif. Seated, fourth from right, is Colonel W. L. Tubbs, Assistant for Ground Safety at USAF HQ; second from right, Major W. H. Wood, SAC Ground Safety Chief. Standing second from right is Joseph C. West, ground safety director, 15th Air Force, host to the conference.

Freedom's Iron Fist

—From page 19

Assistant for Ground Safety, who has been associated with the program from its beginning.

On a sign at Biggs AF Base near El Paso are these words of the late General "Hap" Arnold, former Chief of Staff of the Air Force:

Aviation is not inherently dangerous. But like the sea it is terribly unforgiving of any carelessness, incapacity or neglect.

After visiting hangars, shops and flight lines at several bases, I found it difficult to accept that idea too literally. It seemed to me that any inventory of normal and special hazards found around a base would fill several pages. The list would stagger most industrial safety men. But as for the swift and sure punishment that follows incompetence and neglect in the operation and maintenance of aircraft, there can be no argument.

And nowhere is the cost of neglect more disastrous. The price tag on a modern bomber runs into hundreds of thousands, and Uncle Sam has a heavy investment in the crews. It costs thousands of dollars to train a pilot, and men who have the physical and mental qualifications to pass the wash-

board are none too plentiful. And conservation of life and property offers opportunities for saving in these days when austerity is influencing the national budget.

Much of what is said here applies to all Air Force operations. This story, however, is concerned primarily with the Strategic Air Command, referred to in military circles as SAC, the monosyllable formed by its initials.

Headquarters of SAC are at Offutt AF Base near Omaha. Formerly Fort Crook, the U. S. Cavalry once maintained a post

to keep the Sioux from scalping the settlers. The bugles have long been silent, the horses have given place to giant metal birds, and the stables are now used for storage. Quarters of modern design are replacing cantonments of the old type, with higher standards of comfort and hygiene for all ranks.

Among the problems faced at almost every base are those involved in the conversion of World War II airfields to airdromes adequate for a jet-propelled age. At many bases this has involved much construction work, with complications well known to all industrial safety men.

From headquarters at Offutt, SAC directs three numbered Air

Plane washing rack developed at Hunter AF Base.





No story of the Air Force would be complete without mention of the distaff members who are serving in important capacities. Above M/Sgt. Mabel Landry (left) and M/Sgt. Katie Szoz discuss menus in the base hospital kitchen at Barksdale.



WAF Sgt. Louise Findlay, a dental technician, assists base dentists in dental surgery.

Forces—the Second, Eighth and Fifteenth—and Air Divisions overseas.

Units of the Second Air Force are in the South with headquarters at Barksdale AF Base, Shreveport, La.; the majority of Eighth Air Force bases are located in central United States with headquarters at Carswell AF Base, Fort Worth, Tex., and Fifteenth Air Force bases are in the western states with headquarters at March AF Base, Riverside, Calif.

Besides its numbered Air Forces in the United States, SAC also maintains two Air Divisions overseas. They are the Fifth Air Division, with headquarters at Rabat, French Morocco, and the Seventh Air Division at South Ruislip, England.

In addition to their current use

for crew training through frequent rotation missions, these overseas bases greatly increase SAC's ability to strike anywhere in the world.

SAC's air forces include heavy or medium bombardment wings, strategic fighter wings, and support squadrons, as well as cargo and tanker units. This enables any one of the air forces to operate as an independent "fighting package," in any part of the globe, thus giving flexibility of operation and complete mobility.

Within the command are two types of bases—major subordinate command headquarters, and installations. In units of the second type, SAC is in somewhat the

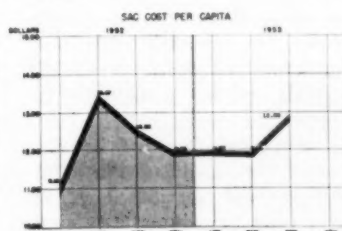
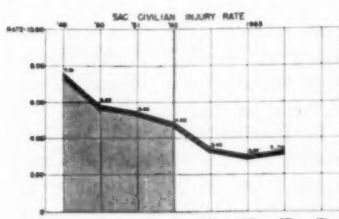
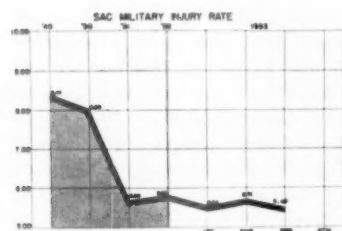
position of a tenant with other branches of the Air Force.

Prevention of accidents, according to SAC Regulation 32-4, is "a continuous command function accomplished through the establishment and maintenance of an effective ground safety program. It will receive the personal direction of all commanders and their staff . . ."

This regulation, issued by Brigadier General R. M. Montgomery, SAC Chief of Staff, for the Commander, General Curtis E. LeMay, outlines clearly and concisely the program to be followed and the functions and responsibilities of

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Charts showing trends of injury rates are watched closely by commanders as well as by the ground safety personnel. For airmen, the exposure is expressed in man-days; for civilian employees, in man-hours. Costs are based on standard charges for various injuries.



INDUSTRIAL HEALTH



*Abstracts of current literature
on Industrial Hygiene, Medicine, and Nursing*

BY F. A. VAN ATTA
Industrial Department, NSC

Health Service for Small Industry

Private Practice in Small Industry, by Forrest E. Rieke, M.D. The Journal of the American Medical Association, 153: 198-201 (September 19, 1953).

DR. RIEKE points out that the great size and great importance of the small industries has generally not been recognized. In Portland, Ore., with a population of 350,000; 80 per cent of the workers were employed in units of less than 500 persons and 55 per cent were employed in units with less than 100 persons in 1947. There is no reason to believe that the figures have changed substantially since.

In these small plants accident rates are more than twice as high as in the larger units and sickness disability rates are much the same. Medical consultation is not common particularly for placement examination, job transfer, rehabilitation, psychological evaluation and utilization of the older worker.

Attempts to apply typical industrial medical services to these plants have regularly met with prohibitive difficulties which stem primarily from an unawareness on the part of most people that private physicians who are primarily in general practice are the only existing and only practical industrial service for most small plants and that these general practitioners are generally unfamiliar with industrial health needs and methods and not particularly interested in learning.

The small plant owners are also generally unfamiliar with industrial medical services and are very often unwilling to spend

money to prevent injuries and conserve health. This unwillingness extends to some of the casualty insurance carriers as well.

At the end of the last war an attempt was made to carry over the medical service which had been set up for the six large shipyards in the Portland area to serve the small industries to which most of the workers turned. The two industrial dispensaries which were set up for this purpose have operated strictly on a fee for service basis, the fees being levied against insurance carriers, employers or the patient, depending on the nature of the ailment.

Due to the lack of a pre-arranged retainer, there has been some difficulty in getting full use of the consultation service of the dispensaries by the small employers. Even after six years in the business, there is still only small beginnings in the use of the preventive services other than the early care of trauma cases.

The beginnings, however, do exist. One of the severe difficulties is the insistence by both insurance carriers and employers on a very low fee for examination of the employee. This convinces both the employee and the physician that only a poor examination is desired.

A few of the employers and a few of the insurance carriers are more recently asking for and getting good examinations and thorough treatment and rehabilitation of the injured.

In Portland the State Medical Society and the Chamber of Commerce have set up a joint committee to educate the industrial

employers in the requirements of industrial health plans.

If ethical practice of medicine is to be carried on in small industry the practitioners and the medical societies are going to have to take the initiative. Contacts with employer and employee groups can be made in a number of ways and in Portland they are made through explanatory talks at business and service clubs, through patients served in the dispensary and hospital and through other physicians, public health agencies, and insurance carriers. An effort is made to visit the work places which pleases both the employer and the employee and gives the doctor a better idea of what he should be doing.

By these means the needs of industry can be met by the private practice of medicine and are gradually being met in the Portland area.

Evaluating Fatigue

Fatigue—Measurement and Reduction by Rucien Brouhand. Industrial Medicine and Surgery 22:547-554 (Dec., 1953)

FATIGUE is a rather vague term which does not permit precise scientific definition because physical fatigue, mental fatigue and nervous fatigue are all common terms. The only common factor among them is the tendency toward inactivity, particularly inactivity in the particular type of activity which has produced the fatigue.

Many attempts have been made to measure fatigue in industry. There are a number of methods of measuring the physiological effects of muscular work. The

simple and direct ones such as blood pressure, pulmonary ventilation, oxygen consumption, chemical composition of the body fluids and rate of perspiring all require rather extensive apparatus. Measurements of daily work output as measurement of fatigue generally actually measures the motivation to work rather than the amount of fatigue produced.

In spite of these difficulties, the measurement of the physiological stress produced by doing work and the time required to recover from the physiological stress does measure one type of fatigue. While it is only a relatively small part of the general problem of fatigue in industry, there are a number of jobs on which muscular exertion is the main factor in fatigue and for these it is well worth investigating. This investigation has demonstrated that practical improvements leading to increased employee well-being together with increased output of work can be produced by such measurements.

The things which were measured in this instance were the pulse rate variation on working and the variation in body temperature, measured orally. The technique was to measure the pulse rate after each spell of work taking three or four measurements from one to four minutes after stopping work and plot the changes in heart rate which occurred after this resting period.

The temperature was taken orally and the reading was generally taken at the fourth minute after stopping work. The onset of fatigue can be predicted from the heart rate recovery curves. When no satisfactory recovery takes place between a series of operations, the heart rate remains at a high level for a progressively longer time as the shift goes on. When the return toward resting level is very slow definite physiological fatigue has been shown.

Part of the variations in determining the fatigue load is the work level. An additional stress is the surrounding temperature and humidity. The same job has been frequently shown to be progressively harder as the environment heats up above 40°F. One

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For he was grounded in astronomye.
He kepte his pacient a ful greet del
In houres by his magik naturel.
Wel coude he fortunen the ascendent
Of his images for his pacient.
He knew the cause of everich maladye,
Were it of hoot or cold, or moiste, or drye,
And where engendred, and of what humour;
He was a verrey parfit practisour.

Chaucer: Canterbury Tales

Saw the above on a monument to a beloved family doctor erected by citizens of Gravenhurst, Ontario. As nearly as I can remember, the inscription on the other side read: "To Solomon Secord, M. D., Surgeon with the Southern Forces in the American Civil War: All That Lived, He Loved."

* * *

Honour a physician with the honour due unto him for the uses which ye may have of him; for the Lord hath created him.

For of the most High cometh healing, and he shall receive the honour of the king.

The skill of the physician shall lift up his head; and in the sight of great men he shall be in admiration.

Ecclesiasticus 38:1-3.

Don't try to find this one in Ecclesiastes in the Old Testament; it's from the Apocrypha.

* * *

Almighty God, who didst inspire thy servant, Saint Luke the Physician, to set forth in the Gospel the love and healing power of thy Son; Manifest in thy Church the like power and love, to the healing of our bodies and our souls.

Book of Common Prayer; Collect for Saint Luke the Evangelist.

Literary Waifs

When we used the piece attributed to Ruskin on the January cover, we admitted with some re-

luctance that several authorities had checked the quote but had been unable to find it among Ruskin's published works. Nobody has yet put forth a claim to authorship.

Reader's Digest for January also carried an inspirational gem of unknown paternity—one which had frequently been attributed to Phillips Brooks. The Digest admitted that no proof of authorship had been produced but felt that it was good enough to publish, no matter who wrote it.

Many a bit of wisdom and near wisdom has gained wide circulation because the author hung it on some famous person. And if it sounds profound, or even plausible, few people will question its origin.

In This Issue . . .

FOR EVERY FLYER in our Air Force, there are ten men in the ground organization to keep the planes flying. Much of their work is exacting and hazardous, combining the problems of industry and transportation with a few peculiar to the military services. This article, describing the ground safety program of the Strategic Air Command and its accomplishments is based on a "sampling" tour of SAC bases in the west and southwest and describing principally the industrial side of the program. The public safety aspects will be presented in an early issue of *Public Safety*. (Page 18)

* * *

Every company which has kept comprehensive accident records over a period of time has learned one inescapable fact; the names of certain persons keep reappearing in the reports with monotonous frequency. This would rule out the laws of chance as an important factor. Here are some observations on the characteristics of people who are injured most frequently from the experience of Dr. Gerald Gordon, Du Pont psychiatrist. (Page 20)

* * *

To Norman Mozley, of our Statistics Division, statistics are more than mathematics. While compiling and interpreting them for the Council's statistical publications, he has been doing some reflecting on basic principles. Result: A series of essays on the philosophy of safety, the first of which is presented here. (Page 28)

* * *

Next month: Our Eighteenth Annual Safety Equipment Issue. It will put a strain on our printer's resources of manpower and equipment as well as on the editorial staff. So if the March News doesn't reach you at the accustomed date, we ask your indulgence.

Carman Fish

Your Workers will be proud to wear **WINGUARD** Safety Shoes



IN **19**
STYLES
A STEEL TOE
FOR EVERY
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Appearance, of course, isn't everything but you'll be amazed how it will help you to persuade your workers to protect their priceless toes with safety shoes.

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GREEN CROSS NEWS



Activities of Local Safety Councils and Chapters

Compiled by TOM A. BURKE

Director of Local Safety Programs, Field Organization, NSC

"Safety Special" Rolls Again

THE SAFETY SPECIAL, pride of the Pittsburgh & West Virginia Railway Company, was right on the tracks again this year. As a fitting climax to a series of meetings held by the company in the Western Pennsylvania area, the safety train turned in its usual faultless performance for the third straight year, according to "Accident Prevention News," official publication of the Western Pennsylvania Safety Council. Aboard the train were executives of the railway company and guest participants in the 12 safety rallies held during November. They included Earl E. Stephan, safety consultant, Western Pennsylvania Safety Council, which organization has cooperated in making a success of the annual safety train tour since it was inaugurated in 1951.

The theme of the rallies, attended by employees of the transportation, maintenance of way, locomotive, car and stores departments of the railway, was the intensified adoption of safe habits with a view toward eliminating employee accidents and personal injuries. Three company supervisors, all of whom have completed safety instruction courses at Carnegie Institute of Technology, were among the lecturers. This year for the first time a separate meeting was held for P&WV employees who drive trucks and automobiles in the performance of their work.

San Jose Awards

The saving of a human life through application of artificial respiration, community service in providing safer walk-ways for children and the reduction of in-

dustrial accidents, were singled out for the awarding of nine scrolls by the Santa Clara Chapter, San Jose, Calif., and the National Safety Council, at a meeting of the Board of Directors of the Chapter on December 15. The presentations were made by Tom A. Burke of San Francisco, acting director of the Western Region, NSC. In the field of service to humanity and safety, seven employees of the International Minerals & Chemical Corporation received local Chapter awards for their part in saving the life of a fellow employee, David E. Johnson of Santa Clara. The Chapter's Award of Honor was presented to Joseph L. Perry of Saratoga, maintenance man of the company, who first noticed the victim in an unconscious and dangerous position as a result of electrical shock and immediately applied the Shaefer Prone Pressure Method of resuscitation. He was assisted later by six other employees, each of whom received a Certificate of Merit from the Chapter for his timely assistance, in what the speaker referred to as "timely teamwork that saved a life."

A National Safety Council Award of Honor was presented to George Gayer, plant manager of the Westinghouse Electric Corporation, in recognition of the reduction of the frequency of disabling injuries for Group "A" in the heavy manufacturing division of the Metals Section of the National Safety Contest. In the field of community safety service, a national award was also presented to Mrs. Lois Suffield of San Jose, who won a certificate of merit in the Carol

Lane Safety Award project, established through grant of the Shell Oil Company, through the National Safety Council.

An Ordinance With "Teeth"

The City Council of Fort Worth, Texas, recently passed an ordinance making it "unlawful for any person, firm or corporation in the City of Fort Worth to place or allow to be placed outside any building or dwelling in a location accessible to children, any discarded or abandoned refrigerator, ice box or other similar container with a door or doors that may become locked." The penalty provides for a fine "up to \$100," and just to tie it up tight, "each day's violation shall constitute a separate offense."

Fort Wayne Fleet Winners

The Annual Award Dinner of the Safety Division of the Fort Wayne Chamber of Commerce was held November 20 with more than 600 fleet supervisors and drivers in attendance. The affair honors all drivers of commercial vehicles in the Fort Wayne area who continuously endeavor to avoid accidents by courteous and defensive driving. Paul H. Coburn, director, Motor Transportation Division, NSC, made the award presentations and Ralph L. Lee of Detroit spoke on "People as They Are on Foot and Wheel." Buffet dinner was served preceding the program.

"Newsmaker of Tomorrow"

Paul W. Seibert, managing director of the Seattle-King County Safety Council, was recently named by the "Committee for Seattle's

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*Once it gets a foothold, fire rips into
your plant like a monstrous claw.
That means you must guard every hazard—
flammable liquids, electrical equipment
as well as ordinary combustibles—
with Kidde Portable Extinguishers or
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COMING EVENTS



In the Field of Safety

Feb. 10, Dayton, Ohio

Second Annual Miami Valley Safety Conference (Biltmore Hotel). Marvin Purk, manager, Safety Council, Dayton Chamber of Commerce, Biltmore Hotel, Dayton 2, Ohio.

Feb. 11-12, San Francisco

California Industrial Safety Conference. (Palace Hotel). A. C. Blackman, chief, Division of Industrial Safety, Department of Industrial Relations, State of California, 965 Mission St., San Francisco 3.

March 2-4, Urbana, Ill.

Fortieth Annual Illinois Highway Engineering Conference. (University of Illinois). William S. Pollard, Jr., Department of Civil Engineering, University of Illinois, Urbana, Ill.

Mar. 7-9, Louisville, Ky.

Southern Safety Conference and Exposition (Kentucky Hotel). W. L. Groth, executive director, P. O. Box 8927, Richmond 25, Va.

March 10-11, Philadelphia, Pa.

Twentieth Annual Philadelphia Regional Safety and Fire Conference and Exhibit (Bellevue-Stratford Hotel). Walter W. Matthews, managing director, Philadelphia Chamber of Commerce Safety Council, Architects Building, 17th and Sansom Sts., Philadelphia 3.

Mar. 17-18, Indianapolis, Ind.

Central Indiana Safety Conference and Exhibit (Claypool Hotel). Jack E. Gunnell, director, Indianapolis Safety Council, 320 N. Meridian St., Indianapolis 11, Ind.

Mar. 22-23, Boston

33rd Annual Massachusetts Safety Conference and Exposition. (Hotel Statler). Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Mar. 24, Madison, Wis.

Wisconsin Cannery Safety Institute.

March 29-30, Dallas, Tex.

Annual Texas Safety Conference. (Baker Hotel). J. O. Musick, general manager, Texas Safety Association, 830 Littlefield Bldg., Austin, Tex.

March 29-31, Los Angeles

First Annual Southern California Safety Congress. (Ambassador Hotel). Joseph M. Kaplan, secretary-manager, Greater Los Angeles Safety Council, 610 South Main St., Los Angeles 14, Calif.

Mar. 30-Apr. 1, Pittsburgh, Pa.

Twenty-ninth Annual Western Pennsylvania Safety Engineering Conference and Exhibit (Hotel William Penn). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh 22, Pa.

Apr. 5-6, Toronto, Ont.

Industrial Accident Prevention Associations, Annual Convention (Royal York Hotel). R. G. D. Anderson, general manager, 600 Bay St., Toronto 2, Ont.

Apr. 5-9, New York

Twenty-fourth Annual Greater New York Safety Conference and Exposition (Statler Hotel; Convention, April 5-9; Exposition, April 6-9). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 East 42nd St., New York 17.

Apr. 14-16, Charleston, W. Va.

Twentieth Annual West Virginia Statewide Safety Conference. Charles Hopkins, managing director, West Virginia Safety Council, Inc., 316-17 Masonic Building, Charleston 1, W. Va.

Apr. 20-22, Buffalo, N. Y.

Fourteenth Western New York Safety Conference and Exhibit (Hotel Statler). Eugene C. Hohlstein, executive secretary, Blaw-Knox Co., Buffalo Equipment Div., 1543 Fillmore Ave., Buffalo 11.

Apr. 20-22, Detroit, Mich.

Michigan Safety Conference (Sheraton-Cadillac Hotel). Jerry E. Moore, executive secretary, c/o Corporate Service Inc., 2210 Park Ave., Detroit 1, Mich.

Apr. 20-22, Columbus, Ohio

Twenty-fourth All-Ohio Safety Congress and Exhibit (Deshler-Hilton Hotel). James H. Fluker, superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 27-28, Fort Wayne, Ind.

Northeastern Indiana Safety Confer-

ence and Exposition. Ivan A. Martin, manager, Safety Council, Chamber of Commerce, Fort Wayne 2, Ind.

Apr. 27-29, St. Louis, Mo.

Central States Safety Conference. (Hotel Chase). Reyburn Hoffman, secretary-manager, The Safety Council of Greater St. Louis, 511 Locust St., St. Louis, Mo.

Apr. 29, Prairie du Chien, Wis.

Southwest Regional Conference, Wisconsin Council of Safety.

Apr. 30-May 1, Boulder, Colo.

Colorado Joint Governor's Teen-Age and Adult Traffic Safety Conference. (University of Colorado). H. A. Storey, executive director, Colorado Highway Safety Council, Room 302, State Capitol Bldg., Denver 2, Colo.

May 4-6, Washington, D.C.

The President's Conference on Occupational Safety. William L. Connolly, director, Bureau of Labor Standards, United States Department of Labor, Washington 25, D.C., or Chas. F. Alexander, manager, Industrial Department, National Safety Council, 425 North Michigan Ave., Chicago 11.

May 4-6, Raleigh, N. C.

Twenty-fourth Annual North Carolina Statewide Industrial Safety Conference (Sir Walter Hotel). H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh.

May 5, Bethlehem, Pa.

Twenty-seventh Annual Eastern Pennsylvania Safety Conference. (Hotel Bethlehem). H. A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

May 6-7, Baltimore, Md.

Annual Governor's Safety-Health Conference and Exhibit (Lord Baltimore Hotel). Joseph A. Haller, director of safety, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

May 13, Sheboygan, Wis.

Fox River Valley and Lakeshore Regional Conference, Wisconsin Council of Safety.

May 18, Janesville, Wis.

Rock River Valley Regional Conference, Wisconsin Council of Safety.

May 20, Kenosha, Wis.

Southeast Lakeshore Regional Conference, Wisconsin Council of Safety.

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New VISOR-TUC



Metal Retrax MODEL 422
Plastic Retrax MODEL 425

Over-Eyes Protection . . . plus all the features of "Tuc-Away"

SAFETY

"Visor-Tuc" fits snugly against wearer's forehead to provide over-eyes protection from glare and flying particles.

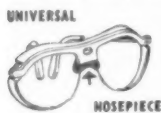


Semi-cup Eye-Savers Lenses prevent entry of particles from side and bottom. Eye-Savers Lenses are shatterproof . . . never splinter into the eye.



COMFORTABLE — Easy to Wear

"Visor-Tuc" weighs hardly more than an ounce . . . rests lightly on the nose . . . Universal nosepiece assures comfort. Retrax Temples in metal or plastic can be adjusted instantly by each worker to suit the shape of his face . . . long or short, wide or narrow. Optically correct Eye-Savers lenses prevent eye strain and permanent injury resulting from distorted image.



ECONOMICAL — low-cost protection

"Visor-Tuc" initial cost is lower . . . maintenance less. Inventory is reduced. Single frame style fits all workers . . . thanks to Retrax Temples and Universal nosepiece. Replaceable lenses are easily removed and inserted by the wearer and are interchangeable in both "Visor-Tuc" and "Tuc-Away". Lenses are available with regular side shield, long (1") side shield or semi-cup, in clear or light, medium and dark green.



See Your Authorized Eye Savers Supplier, or write direct for full Information on the New "Visor-Tuc" and other modern Eye Savers

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need Protection

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The lotion-like
skin cleanser

pH-6 is a specially formulated, sulfonated oil, bland skin cleanser ... amazingly effective in removing oils, greases, and other industrial grime. Lotion-like effect actually protects the skin ... leaving it clean, smooth, and supple.

Neutra-Foam

New mild synthetic skin detergent with excellent foaming properties. Leaves no disagreeable soapy odor on the skin.

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Industrial Health

—From page 41

of the best examples of the ill effects of high temperature and humidity is shown when impervious clothing worn as a protection against chemicals interferes with the dissipation of body heat and moisture. This leads rapidly to a condition of complete exhaustion.

By measuring the heart rates after each part of a job requiring multiple operations, it has been possible to isolate the parts which are done at the greatest physiological cost. By modifying these parts, it is possible to increase the efficiency of the operation while decreasing the amount of fatigue produced by it.

One of the simplest examples is skimming impurities from the surface of a liquid with a long heavy ladle. With the tanks situated at such a height that the operation had to be performed at shoulder level, the physiological cost was very high with the pulse rate reaching 160 per minute for the first pulse recorded one minute after skimming a single tank. By building a platform so that the men could operate at slightly above waist level, the recorded heart rate dropped to 112 beats per minute under the same conditions. This indicated a drastic reduction in the physiological cost of the job although the mechanical work expended remained identical.

In addition to changing the type of motion and the timing of jobs to decrease the physiological cost, it is also often possible to partially or totally mechanize the job with a considerable improvement. It is obvious that when high temperatures and high humidity enter the picture, the physiological work is considerably increased on the identical job. If the temperature can be lowered, as by a ventilation system, by insulating the sources of heat, by protecting the workers with screens or protective clothing, or by developing tools and methods which will enable the work to be done from a distance, the physiological stress will be considerably reduced.

In many instances, it can also be considerably reduced by establish-

ing appropriate rest periods. This is often quite difficult and should be done by the trial and error method with close following of the physiological reactions to get the optimum value out of the rest. Generally, the rest period will have to be increased as the latter end of the shift is approached and the accumulated fatigue increases. Sometimes the rest period needs to be supplemented by adding extra men to the work team when the work is excessively heavy.

The importance of an adequate water supply for men doing manual labor has been repeatedly emphasized but still is not completely understood. In heavy jobs in hot weather, 12 quarts or more of water can be lost through perspiring in eight hours of work. Drinking must be frequent and heavy to maintain the water metabolism at the normal level. Usually the regulation is automatic if a sufficient supply of cool clean and palatable water is available. The water temperature should be maintained at 42° to 45° F. At the same time the salt level must be maintained by taking excessive salt, either with the meals or in the form of salt tablets or otherwise.

There are individual differences in the capacity to perform muscular work which depend on the natural fitness of an individual and his amount of training. These can be determined by measuring the pulse rate and body temperature curve to find out the physiological cost of a particular job to a particular man. If it is such that he cannot adapt to the job, he should be given work which is easier for him.

Over the last eight years these investigators have found that on the average value of the first recovery pulse is at about 110 beats per minute or below no abnormal fatigue is established as the day progresses. This level of work can be maintained throughout the shift without building up a heavy physiological debt by the end of the day.

Once you have fastened in your mind the truth that there can be no getting without giving, you have hold of the basis of success in any undertaking.



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Operate your unit first aid system at lower cost

The secret is... *cellophane-wrapped units!*

MSco gives you this wrapping service free!

Here is how it saves you money...

- 1 Infrequently used units will not have to be replaced** because of the unit carton (not contents) wearing out. Now MSco protects the carton, too!
- 2 Pilferage of items from a multiple unit can always be detected**... like forceps, scissors, or a tourniquet, for example. It's a *tamperproof* unit! Thus, a man in the field never suddenly finds an important item missing just when he needs it!
- 3 Inspection time cut 75%.** A glance tells the story! No more opening of every single unit package to determine contents. Actual studies prove this reduces inspection time 75%. Figure out *your* savings on your own hourly rate.
- 4 Every unit gets continuous protection.** No more discards, because other units in the kit are protected against leakage due to partially used and improperly sealed items, such as tubes, applicator vials and bottles.
- 5 Cellophane builds extra confidence** because packages are tamperproof. Your *employees* know this!



Turn page....



As introduced at the National Safety Congress, October, 1953

New cellophane-wrapped first aid units and color-matching kits by



Here's unit first aid in its finest form... remarkably improved to lower your costs, give greater service in the field!

New cellophane-wrapped units... *exclusive* with MSco... and new color-matching kits give you a more practical, serviceable unit carton *plus* a more practical, serviceable kit. Here's why:

Cellophane wrapping eliminates replacement of infrequently used units... makes the unit tamperproof, guards against pilferage of items... cuts inspection time 75%... gives continuous protection to every unit... builds extra confidence among your personnel.

Kits are of attractive *hard finish* MSco Forest Bronze that withstands scuffing, weather, abuse! This hard, baked-on enamel is the same type as used by automotive equipment manufacturers. Your field men know what such protection means!

And, most important, too, this new standard color

scheme for *both* the units and cartons... highly visible Buckskin Tan with Forest Bronze... means extra legibility, quick and accurate reading of contents and use data. Saves time when it counts most!

Such new and *practical* developments are the kind you can always expect from MSco. For MSco people are *specialists* in unit first aid... devoted *exclusively* to the policy of bringing you the very latest and very best in unit first aid for your field operations.



Medical Supply Company

ROCKFORD, ILLINOIS • IN CANADA, IT'S SAFETY SUPPLY CO.



How come one of the world's most important insurance companies is located in Wausau, Wisconsin?

The fishing's good near Wausau. It's only a stone's throw to where the deer run. Once in a while, they say, a lynx comes down from the north.

And it's the home of one of the world's most important insurance companies.

How come?

This was lumber country once. And lumbering was a hazardous business. 43 years ago a group of lumbermen joined together to pay the claims of injured sawmill workers under Wisconsin's new workmen's compensation law. The group came to be called The Employers Mutuals of Wausau.

Wausau is no longer lumber country. But Employers Mutuals has stayed. So have the men who guided the company from the very beginning.

How come?

Because they knew that something good had grown up there. A certain way of doing business that was good. An almost *personal* character. A fairness that bent over backward rather than forward. Policyholders and their employees kept saying that Employers Mutuals were "good people to do business with."

There was a "Wausau personality" about us that people seemed to like and we didn't

want to lose. We're a large company today. We write all types of casualty and fire insurance, and are one of the very largest in workmen's compensation. We have two reputations, born and raised in Wausau, that we aim to hold. One is unexcelled service on claims. The other is an accident prevention program that means lower costs to policyholders.

We're still "Wausau." But today there are offices of Employers Mutuals of Wausau in 89 cities. "A little bit of Wausau on the sidewalks of New York!" And we're still good people to do business with.

Employers Mutuals of Wausau



"Good people to do
business with"

SMALL BUSINESSES and ASSOCIATIONS

By A. M. BALTZER and ROBERT D. CURRIE

Small Business Program Staff
National Safety Council

Another Association Starts a Program

The Chicago Association of Hotel and Restaurant Meat Purveyors recently launched a safety program with a talk by R. A. Harschnek, safety director of Swift & Company, a member of the National Safety Council's Board of Directors and the American Meat Institute Safety Committee. H. D. Tefft and D. S. MacKenzie of the AMI staff also discussed hazards in the industry and offered the help of the AMI's Safety Committee.

Safety in the small units was discussed because the industry is made up of extremely small companies. Mr. Harschnek pointed out that one small Chicago meat-packer had saved more than \$1,700 over and above the cost of providing workers with steel mesh gloves, at the same time boosting production. He also pointed out that meatpacking plants participating in the National Safety Council's contest could boast of an accident frequency of 8.3 whereas reporters to the Bureau of Labor Statistics for the same period had a frequency rate of 20.1.

The Meat Purveyors Association appointed a Safety Committee which will work with the corresponding Safety Committee of the AMI and the Meatpacking Section of the National Safety Council.

25th Anniversary

The Manufacturers' Association of Montgomery County celebrated 25 years of organized safety activity. An estimated 800 foremen, executives, industrial nurses and safety committeemen, the majority representing small business, at-

tended the annual dinner meeting held on January 26, at Pottstown, Pa.

During his address at this dinner, Paul Jones, director of public information for NSC, formally presented the Council's Association Award to Philip L. Corson, president of the Association for their outstanding safety activities during the past year.

Mr. Jones repeatedly referred to accident prevention in the smaller business. He traced the blame for lack of activity in safety in small business to the professional safety people—including the National Safety Council—and to big business itself. He quickly added that the Council recognized the situation and today boasts a fine small business program.

The Manufacturers' Association of Montgomery County is unique in that it is one of the first local associations to recognize the value of organized safety—and that was way back in 1929 when their for-



The Linen Supply Association of America offers commendable service for better public relations through safety posters.

mal safety program was conceived. Furthermore, their interest is indicated by membership in the Council since 1932.

Robert Scott, their safety director and an energetic member of our Small Business Committee, points with pride to the fact that in the face of rising employment, the member companies have reduced their accidents 70 per cent. For the year 1952, the association members ran 17.2 per cent below the National Safety Council's national accident frequency figures—all of which bears out the fact that a sound association safety program can produce excellent results.

Effective Truck Poster Program

In cooperation with the National Safety Council the Linen Supply Association of America produced special colorful safety posters exclusively for use on members' trucks. These trucks are making friends on every thoroughfare they travel. The good will program reaches millions of people daily. This truck poster program is unquestionably producing one of the most favorable reactions the linen supply industry has ever enjoyed.

Sight Conservation in Gray Iron Foundries

Eye accidents occur with great frequency in many foundries. In fact, eye injuries causing permanent disability are three times as numerous in iron foundries as those in manufacturing in general. It is estimated that 95 per cent of industrial eye injuries can be prevented through use of tested safety methods and equipment.

The Safety Committee of the Gray Iron Foundries' Society has given serious consideration to the high eye accident rate prevailing in the industry. In cooperation with the National Society for the Prevention of Blindness, the Gray Iron Foundries' Society made a three year study of the sight conservation facilities, practices and problems affecting workers in the Gray Iron Foundry industry. The results of this study is published

in a 20-page booklet *Sight Conservation in Gray Iron Foundries*. Included in this booklet are recommendations intended to establish eye protection standards and sound operating programs.

This publication was mailed to all members of the Gray Iron Foundries' Society and to some 700 prospective member companies—just another example of the excellent safety service provided at the association level.

Industrial Health to Be Conference Topic

HEALTH PROBLEMS of the worker and his family will be discussed at the 14th annual Congress on Industrial Health, to be held February 23-25 at the Brown Hotel, Louisville, under the sponsorship of the American Medical Association's Council on Industrial Health.

The role of industry in the maintenance of the health of the nation will be the subject of the opening general session on Wednesday morning, February 24. In the afternoon, a clinic on health programs for executives will be presented. The value of screening examinations will be discussed.

The President's award to the physician making the outstanding contribution to employment welfare of the handicapped in 1953 will be presented at a dinner co-sponsored by the Jefferson County Medical Society.

Problems of a small plant operator will be considered. The National Safety Council's small business and associations committee will assist. This will be followed by a presentation of how a plant can prepare for emergencies.

A joint session with the A.M.A.'s Council on National Emergency Medical Service will discuss community preparations to meet a disaster. A report will present the working of such a plan in Vicksburg, Miss. The program will cover atomic bombing and bacterial, chemical and psychological warfare.

A preliminary conference with chairmen of state medical society committees on industrial health will be held on Tuesday, February 23.

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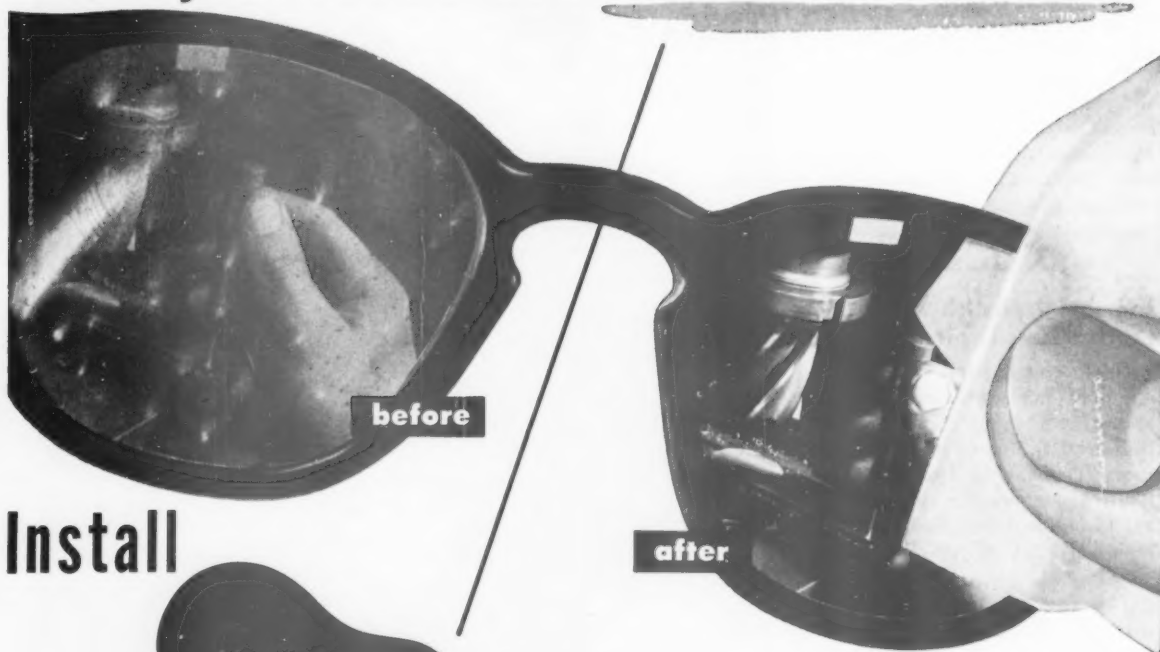


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New York, Philadelphia, Pittsburgh, Portland,
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Chain**

Dirty Glasses are **DANGEROUS**



Install

**SIGHT
SAVER**

Cleaning Stations



PROMOTE SAFETY . . . 25% of all industrial accidents are caused by faulty vision.

INCREASE PRODUCTIVITY . . . 30-40% of production losses are traceable to eye-caused accidents.

REDUCE ACCIDENT COSTS . . . 1/2-billion dollars is the estimated annual cost of accidents due to foggy vision.

IMPROVE MORALE . . . make it easy for workmen to keep eyeglasses and safety glasses clean.

Getting workmen to wear safety glasses eliminates one safety problem but introduces another hazard.— **DIRTY GLASSES**. And that's why you need Sight Saver Cleaning Stations to supplement your eye safety program. **SIGHT SAVERS** provide the quickest, easiest way to keep eye glasses and safety glasses sparkling clean. They wipe away the best excuse workmen give for not wearing safety glasses.

There's no muss, no fuss, no fluids, no wasted time. **SIGHT SAVERS** are saturated with Dow Corning Silicones to simplify cleaning and polishing glass lenses; to give added clarity and luster. Tissues are just the right size, 3" x 7"; treated both sides. And **SIGHT SAVER** Cleaning Stations are easily installed on metal, wood, glass or tile walls. Foolproof, permanently lubricated dispenser eliminates waste, issues a single tissue at a time. No maintenance involved. Simply insert refill packet as required.

READILY AVAILABLE*

from leading Safety Supply Houses

Cat. No. 60 Black Dispenser	\$2.50
Cat. No. 61 White Dispenser	\$2.50
Cat. No. 62 Safety Green Dispenser	\$2.50
Cat. No. 65 Refill Packet of 800 tissues	\$1.45

*Write Dept. DZ-14 for list of Safety Supply Houses in your area.

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SHOE SAVER
Prevents this!

Makes feet more care free

SHOE SAVER is a durable, water repellent silicone treatment that keeps water and oil from penetrating the leather and yet allows leather to breathe. It therefore reduces medical care due to contact dermatitis or wet feet. And by keeping leather soft and pliable, SHOE SAVER makes shoes more comfortable to wear; improves morale and cuts overhead.

Makes shoes last longer

SHOE SAVER protects and preserves leather and stitching. By excluding water and oil it lengthens the life of leather; keeps shoes from cracking and pulling out at the seams. It reduces the stiffening effect of heat; increases flex abrasion resistance by 50%.

Here's Proof

Exposed to hydraulic oils and kerosene in a large automobile plant, shoes treated with SHOE SAVER lasted more than twice as long as untreated shoes. In a foundry where heat caused shoes to dry out and crack in 4 weeks, identical shoes treated with SHOE SAVER were still soft, pliable and comfortable to wear after more than 6 weeks.

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Pint Cans . . \$ 2.00

Quart Cans . . 3.75

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Please send me your complete list of Safety Supply Houses handling Shoe Saver.

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FIRST IN
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**DOW CORNING
CORPORATION**

MIDLAND, MICHIGAN

Wire from Washington

By HARRY N. ROSENFELD

Washington Counsel, National Safety Council

A VERY HEAVY AGENDA awaited the Congress which came back to Washington in January. Just under 10,000 bills have already been introduced, and (but for the 288 which became public laws) will be up for consideration during 1954.

Among the many bills before Congress are a relatively small number which affect safety in one form or another. Some of these bills have already been acted upon by one of the Houses of the Congress, others are soon to be acted upon; still others will likely die in Committee. Among the more important bills are the following:

Railroads

S. 539 (introduced by the late Senator Tobey) authorizes the Interstate Commerce Commission to order any railroad carrier to install radio and electronic safety devices whenever it determines that the public interest warrants such order. This bill, which has been part of the Interstate Commerce Commission's legislative program for years, was approved by the Senate in the closing days of the last session of Congress.

On two other bills no action has been taken thus far. S. 1023 (by Senator Morse) prohibits common carrier railroads from delivering, for use, any car which is not equipped with appliances as required by the Railway Safety Appliances Act, even where delivery is effected on the property of a consignee who is not a common carrier subject to that act. And H. R. 1821 (Gross) directs the Interstate Commerce Commission to issue regulations requiring that freight and other unlighted railroad cars be equipped that they can be seen at night time by drivers of motor vehicles. The Inter-

state Commerce Commission and the Department of Commerce have recommended that H. R. 1821 not be enacted into law.

Airplanes

S. 8 (McCarran) creates an independent Air Safety Board of five members to be appointed by the President, subject to confirmation by the Senate. All present functions of the Administrator of Civil Aeronautics and the Civil Aeronautics Board with respect to air safety would be transferred to the new Board, and other air safety functions would be created. No action has yet been taken on this bill.

H. R. 2108 (Holtzman) makes a misdemeanor, subject to a \$500 fine for a first offense, of any violation of civil aeronautics safety regulations. No action has been taken on this bill as yet, but there are indications that favorable action may be likely.

Marine Safety

No action yet taken on a variety of marine safety bills. Three bills provide for some form of inspection.

S. 2072 (Purtell) requires annual inspection and safety certification by the Coast Guard of all small vessels carrying passengers for hire. H. R. 3495 (Reams) subjects vessels of over 15 tons (with certain exceptions) to all applicable inspection, safety and navigation regulations of steam vessels. And H. R. 6491 (Weichel) requires the Coast Guard to make biennial inspections of the hulls and boilers of cargo vessels. Hearings were held during the 82nd Congress on a bill similar to H. R. 3495.

H. R. 5023 and 6004 (McCormack) require, for safety purposes,

the installation of automatic radio call selectors on American cargo ships carrying less than two radio operators. Both the Federal Communications Commission and the Department of Defense have recommended against enactment of these bills.

S. 602 (Tobey) is intended "to provide for greater safety of life and property at sea" by authorizing the Secretary of the Treasury to make necessary rules and regulations for loading, stowing and securing of grain and other bulk cargoes that present hazards to the stability of vessels at sea.

S. 926 (Smith of New Jersey and Kennedy), and H. R. 3705 (O'Neill), amend the Longshoremen's and Harbor Workers Compensation Act to require every employer and every owner, operator or lessee of a vessel or facility on navigable waters to furnish and maintain reasonably safe and healthful places of employment equipped with all necessary safeguards and devices. It gives the Secretary of Labor for the right of inspection, and authorizes him to issue regulations "for the prevention of accidents and occupational diseases."

Industry

S. 360 (Murray) and H. R. 4145 (Bailey) enact an Industrial Safety Act. They provide federal grants to the states, through the Secretary of Labor, to assist state labor agencies in establishing and maintaining safe working conditions (except in coal mines, which are covered by other legislation).

The bills provide for an Industrial Safety Advisory Committee, to be appointed by the Secretary of Labor. This Committee would review existing industrial safety

—To page 60

NOW... a Non-Slip Glove that's Really Ventilated!



Model R-45

Hood Glove models R-45 and R-46 have a non-slip finish... yet they are far more flexible than ordinary non-slip gloves.

Ideal for use in any occupation or industry which requires a rough-surfaced glove to assure a firm grip in handling slippery, bulky objects.

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Cases for Comment

Compiled by **ROBERT D. GIDEL**,

Senior Engineer, Industrial Department, National Safety Council.

Strong Coffee

AT NOONTIME on company property, an employee purchased a cup of coffee. Employee stated that as he started to walk away from the building he gulped a drink of coffee. It went down the wrong way and he began to gag. He then fell backward striking his head. Employee was unconscious for a few minutes. He was taken to the hospital by ambulance and the doctor's diagnosis was "cerebral concussion—occupational doubtful."

The company investigated but could find no slipping or tripping hazard at the entrance to this building. One witness said he saw the employee raise the cup toward his mouth and then fall back with his body rigid. No one else was affected by this coffee.

The Committee of Judges agreed that this case should not be counted in the rates. From the information given, it appeared that the fall of this employee when he was drinking coffee did not arise out of and in the course of his employment.

* * *

This type of occurrence might cause you to consider what might result if someone were actually injured as a result of eating something on the premises. Was the food furnished by an agency under the control of the employer? Do you have protection for acts of an independent contractor who might be responsible? Is the food service supplied for the benefit of the employer or the employee?

What facilities do you have for the use of employees who bring their own lunch? Are they clean and inviting? Is there a possibility of toxic or undesirable materials contaminating the food where stored or eaten?

No Feeling

An employee had suffered injuries previously requiring him to have part of his leg and foot amputated. The employee was fitted with an artificial foot which he was able to use without the aid of cane or crutches.

In the case in question, this employee stepped on a 3 inch piece of No. 4 bare copper wire lying on a cement floor, which threw him off balance. Due to lack of feeling in his artificial foot he did not realize he was off balance until he was falling. The employee twisted the muscles in his right leg, resulting in lost time.

The company believed that this lost time was caused by the artificial foot and not by circumstances that normally would cause lost time, and therefore questioned if this injury should be included in the rates.

The Committee of Judges decided that this injury arose out of and in the course of employment, and that the case was in no way altered by the fact that the employee had an artificial foot.

* * *

Such instances cause injuries to people with "natural feet" every day of the year. Since we know that people don't always watch where they are going, we have to be our "brothers' keeper" and keep working areas cleaned up constantly.

In this type of case we often hear the old excuse, "he was careless" or "why didn't he watch where he was going?" Any such explanation for this or any similar type of occurrence is "strictly for the birds."

A COMPANY competing for an outstanding safety record wants to make sure that no accidents are wrongly charged. This can be done through ASA Standard Code Z16.1-1945. If there is any doubt as to interpretation of the Code, the Committee of Judges of the American Standards Association Sectional Committee is available to review the facts.

A few of these cases are discussed briefly in this department. It is hoped that they will aid readers not only in determining the chargeability of accidents but also in planning preventive measures.

He Bumped Something

An inspector in an electrical manufacturing plant claimed that he struck his leg against a panel board box. He continued to work and did not report his injury to the plant doctor until four days later. There were no witnesses to the accident. Employee was 58 years old and had been on the same job for 40 years. Past medical history showed very high blood pressure and varicose veins.

The doctor reported that there was a possibility of thrombosis with varicosities, as a result of the employee striking the leg against the box. Employee was removed to the hospital for treatment and due to his physical condition, lost a total of 120 days from work.

Since there was no neglect on the part of the employer and nothing fell against or struck the employee's leg, the company questioned whether this should be considered an industrial injury and, if so, what time charge should be used.

The Committee decided that this case should be counted in the rates, with a time charge of 120 days. The Committee believed that since there was no question about the facts of the accident, it was chargeable under Paragraph 2.3 of the Code Z16.1-1945 in that the injury aggravated a pre-existing physical weakness.

* * *

How crowded was the work area in this case?

So often we hear about the "stupid" employee who got hurt by bumping into something. Then, we find that it would be impossible for anyone to do any work at his station without bumping into something. Just not enough room.

Good housekeeping and good "in-process" storage practices can keep such injuries to a minimum—(not counting savings from reduced scrap and less lost production time).

Mother (examining toy): Isn't this rather complicated for a small child?

Clerk: It's an educational toy. Madam, designed to adjust a child to live in the world today. Any way he puts it together, it's wrong.



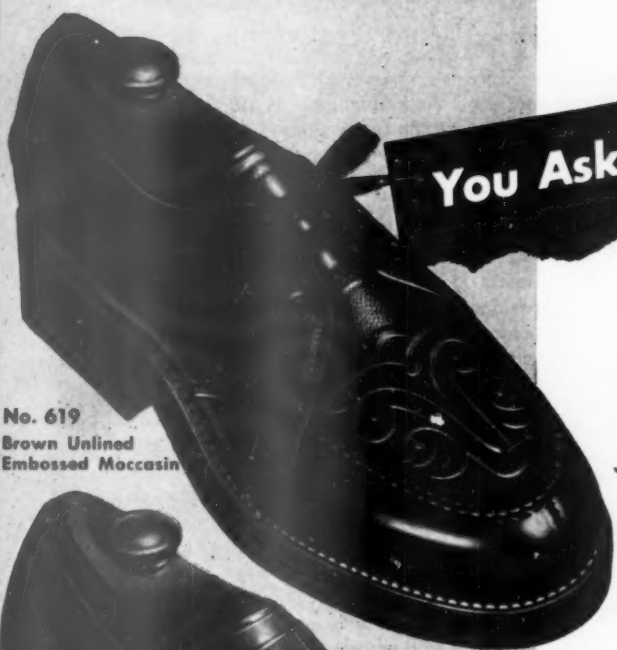
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*The Safety Shoe for
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Iron Age *Safety Shoes*

Wire from Washington

—From page 56

laws, regulations and practices and make recommendations to the Secretary of Labor, looking to more effective control of hazardous conditions and lowering of the industrial injury rate.

S. 2262 (Johnson of Colorado) would establish in the Department of the Interior a Bureau of Coal Mine Inspection and Safety, and transfer to it the functions of the Bureau of Mines under the provisions of the Federal Coal Mine Safety Act.

S. 1599 (Humphrey and Murray) is a mine safety bill which authorizes the Secretary of the Interior, through the Bureau of Mines, to inspect and investigate metallic and non-metallic mines and quarries for information relating to health and safety conditions and causes of accidents. It sets up a six-member Advisory Committee, to be appointed by the Secretary of Interior from management and labor; this Committee's function is to promulgate a code of reasonable standards and rules pertaining to safety and health conditions in mines and quarries.

No action has been taken on any of these four bills.

Schools

H. R. 250 (Elliott) provides for a School Health, Safety and Physical Education Act, and authorize grants to the states to promote school health, safety and physical education. No action has been taken on the bill.

A variety of committees deal with these proposed bills. In many instances, the schedule of activities of these committees has not yet been made, and it will not be determined until after Congress re-assembles what action, if any, is to be scheduled on these various bills affecting safety.

Motor Vehicles

H. R. 3203 (Wolverton), which was approved by the House of Representatives, authorizes the Interstate Commerce Commission to

regulate the use, by motor carriers of motor vehicles not owned by them, in order to assure that the leasing carriers would have full direction and control over such vehicles and bear responsibility for compliance with law and regulations concerning safety and operation of equipment. It also provides for some other, and highly controversial, provisions concerning such leasing of motor trucks. The specific provisions have already gone into effect through a regulation of the Interstate Commerce Commission effective September 1, 1953.

Speeds Inspection of Fire Extinguishers

WEIGHING 209 fire extinguishers once a week to make sure they contain the proper volume of CO₂ used to be a three-day job at Food Machinery and Chemical Corporation's Ordnance Division at San Jose, Calif.

Thanks to the ingenuity of Fred Proud, FMC maintenance department employee, this same job is now accomplished in only four hours.

Proud used to drive a fork-lift truck, loaded with a pallet and large cumbersome scale, around to each extinguisher station to make this weekly volume check. Now he carries a light-weight \$18 hanging scale for the same purpose. The small hand scale is hung from the extinguisher bracket and

the extinguisher is attached to the scale for weighing.

Besides saving 2½ working days, Proud's job is easier and the valuable fork-lift truck is released for other work.

Pride Called Key to Worker's Performance

A single spark, unnoticed in a pine forest, may creep under fallen needles, to erupt later in an awesome forest fire. According to Whiting Williams, Cleveland consultant in human relations, this also applies to minor misunderstandings between management and workers. Petty grievances often smolder, only to develop into a serious breach in management-worker relations. Minor issues often snowball into major disputes, because management fails to correct some seemingly trivial annoyance that offends a worker.

This was the theme of an article by Mr. Williams, which appeared in a recent issue of *Connecticut Industry*.

Pride is the key to every worker's performance, says Williams. Offend a man's pride and you reduce his efficiency, his willingness to cooperate.

Americans are imbued with a great deal of pride in everything they say or do. Also, they are hungry. Not for food, as in many strife-torn countries of the world, but for attention, recognition and understanding. It is this hunger management must satiate, for an effective relations program.

A task should be explained, when such an explanation would serve to dull the normal American aversion to taking a dogmatic order.

Personal contact is important in learning a worker's fears, hopes, prides, limitations and capabilities. Such personal contact, between management and worker, will serve to promote better mutual understanding. Understanding leads to cooperation. Cooperation will mean a happier, more efficient worker, turning out a better product.





THAT'S A TRANSISTOR. *invented at Bell Telephone Laboratories.* This tiny electronic device can do many things that vacuum tubes can do and more besides. Though little larger than a coffee bean, it can amplify electric signals 100,000 times.

She's Holding a Five-year-old Granddaddy

The *Transistor* was announced only five years ago but it is already the daddy and granddaddy of many promising offspring. All of the growing uses of this tiny electronic device stem from its invention at Bell Telephone Laboratories.

Seldom has there been an invention with such exciting possibilities in telephony and in other fields. A recent issue of *The Reader's Digest* calls it "The Fabulous Midget" and reprints these

words from an article in the *Science News Letter*: "In less than half a century, the electronic tube has changed the world. The effect of the transistor on our lives may be equally potent."

The Bell System, in accordance with its established policy of making all of its inventions available to others on reasonable terms, has licensed forty companies to make and sell transistors. These include makers of advanced

equipment for defense, as well as radios, television sets, computing machines, hearing aids and electronic apparatus.

One of the first uses of the *Transistor* in telephony was in the new electronic equipment which enables telephone customers to dial Long Distance calls from coast to coast.

We can already see the time when it will bring many other improvements in both Local and Long Distance service.

BELL TELEPHONE SYSTEM



LOCAL . . . TO SERVE THE COMMUNITY.

NATIONWIDE . . . TO SERVE THE NATION.

THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

ACCIDENTAL DEATHS in October totaled 8,100, a decrease of 100 from October, 1952. Decreases were recorded in deaths from home and occupational accidents. There was an increase in public non-motor-vehicle fatalities while deaths from motor-vehicle accidents showed no change.

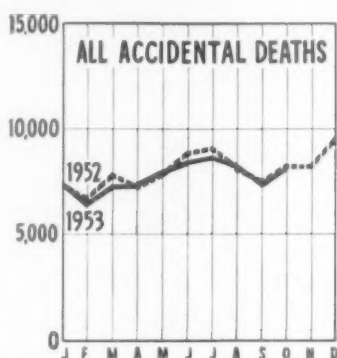
The total for ten months was 77,300, or 2 per cent below the 1952 comparable total of 78,500. Most of the reduction occurred in home accident fatalities but deaths from occupational accidents also were fewer. Public non-motor-vehicle deaths numbered about the same as in 1952 and motor-vehicle deaths were slightly higher.

Motor-Vehicle Deaths

The October total of motor-vehicle deaths was 3,640, no change from 1952. However, compared to 1951, it was a reduction of 3 per cent.

Deaths for the ten months totaled 31,060, an increase of 1 per cent over the 1952 total of 30,670. The ten-month death rate per 100,000-000 vehicle miles was 6.8, a reduction of 3 per cent from the 1952 comparable rate of 7.0.

Of the 46 states reporting for ten months, 17 had fewer deaths than in 1952, 2 showed no change, and 27 had more deaths. A total of 468 cities with populations of more than 10,000 reported an increase of 2 per cent for October and 3 per cent for ten months.



October	1953	1952	Change
	8,100	8,200	-1%
Ten Months	77,300	78,500	-2%

Regional changes from 1952 in the ten-month death totals were:

North Atlantic	+6%
South Atlantic	+1%
North Central	+4%
South Central	-2%
Mountain	-1%
Pacific	-5%

Occupational Accidents

Deaths from occupational accidents numbered approximately 1,200, or 100 less than occurred in October, 1952. The ten-month total was 12,400, a reduction of 2 per cent from 12,600 in 1952.

The October frequency rate per million man-hours in seventeen sectional accident prevention contests conducted by the National Safety Council was 5.79, a decrease of 8 per cent from October, 1952. The ten-month rate was 6.17, a

reduction of 7 per cent. The October rate for plants in community contest was 7.67, an increase of 1 per cent over October, 1952. The ten-month rate was 7.50, a reduction of 10 per cent.

Public Deaths

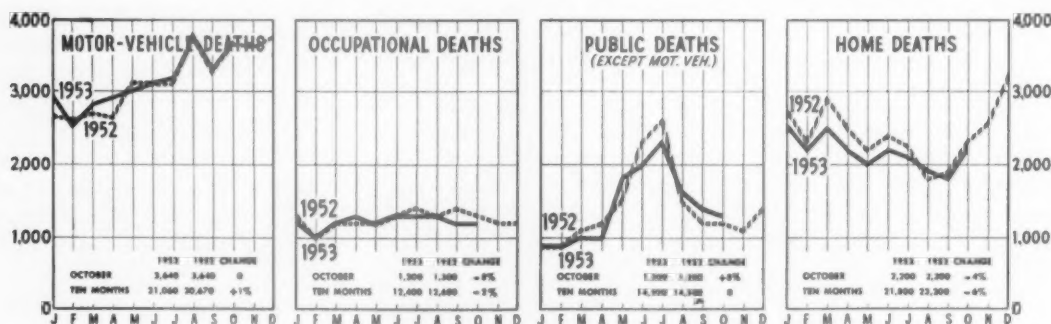
There were approximately 1,300 deaths from public non-motor-vehicle accidents in October, or 100 more than in October, 1952.

The ten-month death total was 14,500, about the same number as occurred in 1952. There was a sizable increase in fatal burns. Small decreases occurred in drownings and unclassified public accidents. Death from falls, firearms and transportation accidents numbered about the same as in 1952. Small decreases were reported for children under 5 years of age and persons 25 to 44 years and 65 years and over. Other age groups showed no change from 1952.

Home Deaths

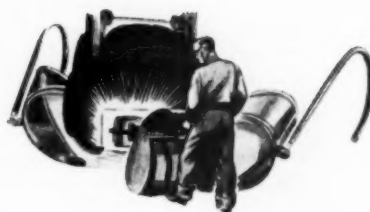
October deaths from home accidents numbered approximately 2,200, a decrease of 4 per cent from October, 1952.

The January-October total was 21,800, a reduction of 6 per cent from 23,200 in 1952. There were moderate decreases in fatal poisonings and burns and small reductions in falls and mechanical suffocation deaths. Deaths from firearms accidents were more numerous than in 1952. A small increase was reported in deaths of children 5 to 14 years old. Other age groups showed decreases with the largest change recorded for persons 45 to 64 years old.





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4. Employee Education Programs—Posters for bulletin boards, pay envelope inserts, other material designed to stimulate interest among workers for eye safety measures; an adjunct to your safety program.



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BAUSCH & LOMB *Safety Eyewear*

Anhydrous Ammonia

(From page 35)

gaseous and liquid ammonia will attack vigorously, copper, silver, zinc, and all of their alloys. It will combine readily with either silver oxide or mercury to form explosive fulminating compounds. Iron or steel will not react readily with either dry or moist ammonia.

6. Ammonia will dissolve readily in water to form ammonium hydroxide. At 0°C (32°F) one volume of water will dissolve 1,176 volumes of gaseous ammonia, or 100 pounds of water will dissolve 89.5 pounds of ammonia. At 20°C (68°F) one volume of water will dissolve 700 vol. of ammonia (53.1 lbs. ammonia per 100 lbs. water). The accompanying chart shows the relationship of solubility to temperature.

TOXICOLOGY

7. Ammonia, strictly speaking, is not a poison. It has no cumulative toxic effect, as lead or mercury have. However, it has a powerful corrosive action on tissue. Exposure to atmospheric concentrations of ammonia above 5000 parts ammonia per million parts of air (0.5 per cent by volume) will produce death by suffocation within minutes. Atmospheric ammonia in concentrations above 2000 ppm (0.2 per cent) will burn and blister the skin after a few seconds of exposure.

8. Liquid ammonia in contact with the skin will produce severe burns not only because of its strong corrosive action, but also through the freezing effect produced by its rapid evaporation, although this latter effect is minor.

9. Concentrations above 700 ppm (0.07 per cent) will cause severe eye irritation, hemorrhages and swollen lids, and if not treated immediately may lead to partial or total loss of sight. Prolonged exposure to atmospheric ammonia

above this concentration (700 ppm) may produce severe scarring of exposed eye tissue, especially the cornea.

10. The mucous tissue lining the mouth, throat, nose and lungs is particularly sensitive to atmospheric ammonia. Ammonia attacks the mucous tissue of the lungs and upper respiratory tract quite violently.

11. Exposure to concentrations above 1,700 ppm (0.17 per cent) may produce serious lung edema (a copious discharge of blood serum into the alveolar spaces of the lungs) and unless properly treated, death will result.

Maximum Allowable Concentration

12. There is no American Standard maximum allowable concentration established for ammonia. Various states have established maximum allowable concentrations for an 8-hour exposure at

Table II

Atmospheric Concentration	Physiological effects
20 ppm*	First perceptible odor.
40 ppm*	A few individuals may suffer slight eye irritation.
100 ppm*	Noticeable irritation of eyes and nasal passages after few minutes exposure.
400 ppm	Severe irritation of the throat, nasal passages and upper respiratory tract.
700 ppm	Severe eye irritation. No permanent effect if the exposure is limited to less than one-half hour.
1,700 ppm	Serious coughing — bronchial spasms — less than a half hour of exposure may be fatal.
5,000 ppm	Serious edema, strangulation, asphyxia; fatal almost immediately.

*Personal communication. J. A. Houghton, Industrial Hygiene Field Services, Liberty Mutual Insurance Co.

100 ppm. The American Conference of Governmental and Industrial Hygienists have recommended 100 ppm as the M.A.C. However, concentrations in the range of 50 to 100 ppm, while not usually harmful for an 8-hour exposure, may have a serious psychological effect and do have considerable nuisance value.

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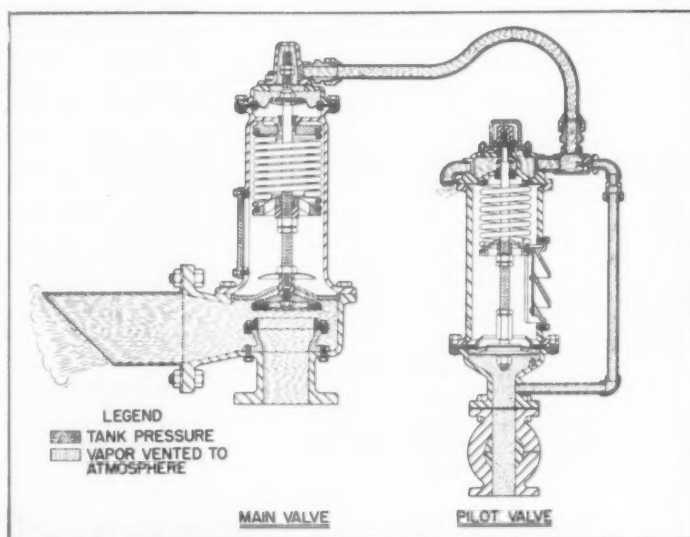


Figure 4. The low operating pressure of refrigerated storage containers requires a quick-opening relief valve. The pilot-operated relief valve shown here meets this need. (Drawing courtesy Shand and Jurs).



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For tools subject to impact and/or torque — specify Tools of Ampco Metal.

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National Safety Council Awards for Outstanding Records

THREE types of awards for outstanding performance in industrial accident prevention are provided for in the "Plan for Recognizing Good Industrial Safety Records" adopted in January, 1952, by the Industrial Conference and the Board of Directors of the National Safety Council.

The three types of awards are:

1. **THE AWARD OF HONOR**, the highest award, replaces the Distinguished Service to Safety Award. It goes to industrial establishments whose experience meets rigorous statistical standards, even though it may not be injury-free. It also goes to those which complete 3,000,000 manhours without a disabling injury.

2. **THE AWARD OF MERIT** has similar but less exacting requirements. The standards for non-perfect records are somewhat lower, and the minimum number of injury-free manhours needed to qualify is 1,000,000.

3. **THE CERTIFICATE OF COMMENDATION** is given only for no-injury records covering a period of one or more entire calendar years and involving exposure of 200,000 to 1,000,000 manhours.

For qualifying calendar-year experience, all three types of awards are made automatically on the basis of annual reports submitted to the Council by members. The Award of Honor and the Award of Merit may also be made on special application in two types of cases.

1. Where a qualifying total of injury-free manhours is accumulated in some period other than a calendar year.

2. Where a current period of

two or more years is to be used in evaluating injury rate improvement.

Publication of awards under this plan succeeds "The Honor Roll" department formerly published in the NATIONAL SAFETY NEWS. The foregoing is but a synopsis of the award plan. For a more complete and precise statement and eligibility requirements, members should refer to the plan itself. Details may be obtained by writing to Statistics Division, National Safety Council.

AWARDS OF HONOR

Chrysler Corporation, Plymouth Division, Detroit, Mich.

Ford Motor Company, Detroit, Mich. (Entire company).

—Atlanta Assembly, Atlanta, Ga.

—Automotive Transmission Division, Cincinnati, Ohio.

—Canton Forge Division, Canton, Ohio.

—Chicago Assembly, Chicago, Ill.

—Dearborn Assembly, Dearborn, Mich.

—Dearborn General Manufacturing Division.

—Dearborn Tool and Die Plant.

—Edgewater Assembly, Edgewater, N. J.

—Engineering Staff, Dearborn and Phoenix.

—Manufacturing Service Division.

—Memphis Assembly, Memphis, Tenn.

—Norfolk Assembly, Norfolk, Va.

—Parts and Equipment Manufacturing Division.

—Wayne Plant, Wayne, Mich.

Telechron, General Electric, Ashland, Mass. Plant.

AWARDS OF MERIT

B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.

Chrysler Corporation, Airtemp Division, Dayton, Ohio.

—Detroit Tank Plant.

—Dodge San Leandro Plant.

—Jefferson Plant.

—Kercheval Plant.

—Marysville, Mich. Plant.

—Plymouth Division, Evansville, Ind. Plant.

—De Soto Wyoming, Detroit, Mich.

Ford Motor Company, Chester Assembly, Chester, Pa.

—Dallas Assembly, Dallas, Texas.

—Dearborn Stamping Plant, Dearborn, Mich.

—Engine Foundry Division.

—Fargo Parts Depot, N. D.

—Houston Parts Depot, Houston, Texas.

—Louisville Assembly, Louisville, Ky.

—Mound Road Division.

—Omaha Parts Depot, Omaha, Neb.

—Richmond Assembly, Richmond, Calif.

—Rolling Mills, Dearborn, Mich.

—St. Louis Assembly, Robertson, Mo.

—Tank Division, Livonia, Mich.

—Twin Cities Assembly, St. Paul, Minn.

Mantahala Power & Light Company, Western North Carolina Unit.

Otis Elevator Company, Hamilton Works.

Texas Instruments, Inc., Dallas, Texas. (Entire company).

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WHETHER YOU USE PLASTIC OR METAL FRAMES

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SPECTACLE TYPE SAFETY GOGGLES



Model 707 — With flexible cable temples.
Model 707S — Side shields; cable temples.
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PENNSYLVANIA OPTICAL COMPANY

READING, PENNSYLVANIA

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Anhydrous Ammonia

(From page 64)

SHIPPING CONTAINERS

13. The Interstate Commerce Commission classifies anhydrous ammonia as a nonflammable, compressed gas. It requires that any container holding more than 165 pounds of ammonia must be protected by safety devices. The regulations further specify that an uninsulated (unlagged) shipping container must not be liquid filled at 51°C (130°F). An insulated (lagged) tank must not be liquid filled at 40°C (105°F).

Cylinders

14. There are two types of cylinders commonly used to ship anhydrous ammonia: the bottle type commonly discharged from the vertical position and the tube type from a horizontal position. There are three sizes of each type to hold 50, 100 and 150 pounds of anhydrous ammonia. When charged the tube type cylinders weigh about 150, 260 and 400 pounds; the bottle type cylinders weigh

about 125, 230 and 340 pounds. The ICC regulations require that the cylinders are not liquid filled at 51°C (130°F). Liquid ammonia will occupy 88 per cent of the cylinder volume at 18°C (65°F). With increasing temperatures the liquid expands until at 74°C (165°F) it completely fills the cylinder.

15. Because of the ICC regulations which do not require safety devices on ammonia containers holding less than 165 pounds, neither type of cylinder is equipped with them as most bottled gas cylinders are. Even though the cylinders are required to meet a minimum hydrostatic retest of 700 pounds, it is wise never to heat them or to allow their temperature to exceed 125 or 130°F. If allowed to become liquid-filled they are much more likely to rupture when subjected to sudden shock, or may rupture from hydrostatic pressure.

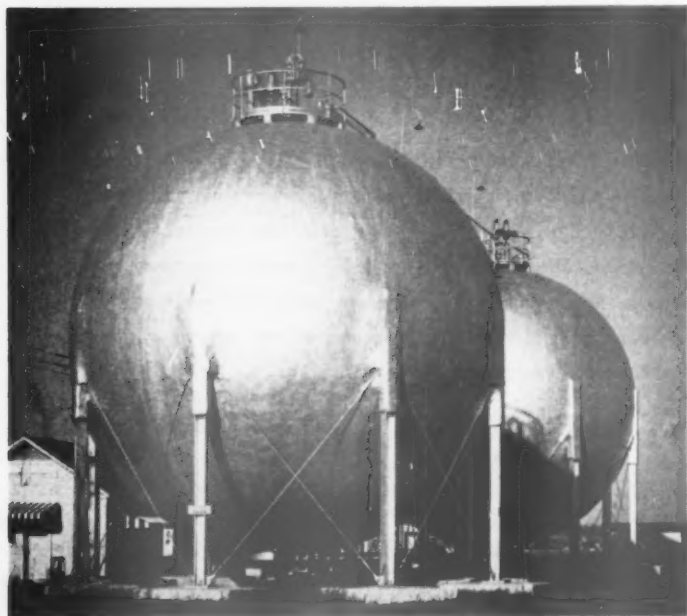


Figure 5. Typical refrigerated storage containers for anhydrous ammonia.



Figure 6. Any respiratory protective device, such as this ammonia mask, used in ammonia service should be equipped with a full face piece. (Photo courtesy Industrial Safety Equipment Association).

16. Cylinders are usually equipped with one discharge valve. The tube cylinder, when laid in a horizontal position with the valve stem or discharge pipe of the valve pointed upward, will discharge liquid. When the valve stem or the discharge pipe is pointed downward the tube type cylinder will discharge gaseous ammonia.

17. Bottle type cylinders in the vertical position will discharge gaseous ammonia if the valve is uppermost and liquid ammonia if the valve is down. Fresh cylinders may discharge some liquid when the valve is uppermost and just opened. This is almost certain to happen if the ammonia temperature is substantially higher than 51°C (130°F).

18. Cylinders are often manifolded to increase the rate of discharge. This procedure can be dangerous if a venturi effect is created by the manifolding arrangement and results in the filling of one of the manifolded containers. If the valve is then closed a slight increase in temperature may burst the cylinder. Check valves installed between each cyl-

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inder and the manifold will remove this danger.

19. The discharge rate of cylinders may be increased by heating. However, if this is done water baths only should be used as a heating medium (not over 110°F).

Multiple Unit Tank Cars

20. A multiple unit tank car consists of 15 unlagged (uninsulated) steel containers of ammonia. Each tank has a capacity of approximately 800 pounds of ammonia and a tare weight of from 1,200 to 1,300 pounds. These tanks are tested at 500 pounds per square inch gauge pressure.

21. Each tank is equipped with fusible metal plugs which melt at 75°C (165°F) in compliance with ICC regulations. It is good practice never to allow the temperature of the one-ton tanks to exceed 50°C (125°F).

22. Each one-ton tank is equipped with two discharge valves. These tanks are commonly discharged from the horizontal position. When they are turned so that one valve is directly above the other, the top valve will discharge gas and the bottom valve will discharge liquid.

Single Unit Tank Cars

23. Most bulk anhydrous ammonia is shipped in single-unit tank cars with 11,000 gallon capacity but filled only with 52,000 pounds (not to exceed 57 per cent water weight capacity according to ICC regulation). The tank cars are tested according to ICC specifications for 300 pounds gauge pressure but under normal conditions the pressure above the liquid ammonia seldom exceeds 175 pounds per square inch gauge, corresponding to a temperature of 34°C (93.2°F). ICC regulations require that tank cars be retested every ten years and the pressure relief valves every five years.

24. Single unit tank cars are commonly equipped with a spring-

loaded relief valve set to open at a pressure determined by ICC regulation in accordance with the design working pressure of the car. This is the only pressure relief device on a tank car. When pressure inside the tank car builds up to greater than the relieving pressure, the relief valve opens allowing ammonia to escape. When this happens the expanding and escaping ammonia lowers the temperature of the ammonia in the tank car; the pressure decreases and the valve should close.

25. Single unit tank cars are emptied through any of four valves mounted in the dome and clustered about the central safety valve. The two valves which point the length of the car discharge liquid ammonia. The other two valves, pointing sidewise across the car, discharge gaseous ammonia. On some cars one of the two vapor valves may have been removed and a second relief valve substituted.

26. Some tank cars are equipped with excess flow valves located on



Figure 7. Air intake on hose mask with blower should be located away from any possible source of contamination (Photo courtesy Industrial Safety Equipment Association).



Figure 8. Eye-wash fountains should be located wherever there is a danger of ammonia getting into eyes. (Photo courtesy Logan Emergency Showers Inc.).

the education line just inside the dome. When these valves close they will open only after the pressures on either side have been equalized. The method for this is shown in the accompanying drawing.

27. The valves on all shipping containers should be labeled to show which discharge liquid and which discharge gaseous ammonia.

Unloading Tank Cars

28. When tank cars are being unloaded, they should be connected to permanent plant piping with 1,250 pound bursting strength ammonia hose. Hoses should be water tested at 1½ time operating pressure at least once every three months. All connections should be made with high-pressure screw or flanged fittings of black iron or forged steel.

29. The standard ICC regulations governing the unloading of tank cars should be followed whenever ammonia is being unloaded. Before the car is connected the blue flag (a light blue sign 12x15 inches with the legend STOP—TANK CAR CONNECTED) should be set out at least 25 feet from the switch end of car. One sign will be necessary for blind sidings and two for a siding which may be entered from either end. Switches should be locked closed. Derails may be set out at least one car length from the switch end of the car being unloaded. Hand brakes should be set and the wheel blocked. Only

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when all this has been done should the car be connected.

30. Anhydrous ammonia is usually unloaded from a tank car by differential pressure as illustrated in the accompanying figures. The usual practice is to connect the liquid discharge valve in the car dome directly to the storage container and a vapor valve in the car dome to compressor (275 psig capacity) taking suction from the storage container. Pressure built up above the liquid in the tank car forces the liquid ammonia into the storage container.

31. Any residual ammonia or vapor left in the car is removed by closing the liquid valves at the car and storage container and reversing the direction of flow in the vapor lines. This can best be done by means of a single four-way reversing valve rather than several by-passes and valves.

BULK STORAGE

Non-Refrigerated Storage

32. All containers for the non-refrigerated bulk storage of anhydrous ammonia should be built of steel for a minimum working pressure of 250 pounds in accordance with either the 1949 or 1952 edition of the American Society of Mechanical Engineers Unfired Pressure Vessels Code, or the joint code of the American Petroleum Institute and A.S.M.E., 1951 edition.

33. Containers should be tested in accordance with local ordinances. Containers should be inspected externally at least once a year.

34. All non-refrigerated storage containers should be fitted with two spring-loaded relief valves set at 250 pounds and connected so that one must always be in service. This will provide the tank with adequate protection and permit a safety valve to be removed for maintenance. Relief valves should be tested once each year. The relief area of each valve

Table III

Relief valve discharge rate for containers of circular cross sections

Container Size*	Discharge Rate**	Size	Rate	Size	Rate
10	419	160	6340	400	10300
15	634	180	7050	420	10600
20	842	200	7345	440	10890
30	1248	220	7695	460	11190
40	1649	240	7935	480	11500
50	2055	260	8240	500	11775
60	2450	280	8530	520	12075
70	2845	300	8825	540	12370
80	3225	320	9125	560	12665
100	4040	340	9420	580	12965
120	4820	360	9720	600	13250
140	5590	380	10000	620	13550

*This figure represents product of outside diameter and length (feet) for cylindrical containers or the square of the outside diameter (feet) for spherical containers.

**Discharge rate given in cubic feet of air per minute measured at 16°C (60°F) and one atmosphere pressure (14.696 psig).

should be in accordance with the flow rate requirements of the ASME code (see table III).

35. The discharge from these valves should be vented upward into the atmosphere in such a way as not to contaminate the area near by or endanger workers or passersby. The discharge pipe should be fitted with rain caps or some other device to prevent the accumulation of moisture. Provision should be made to drain any condensation which might accumulate in the vent lines.

36. Storage containers should not hold more than about 35 or 36 pounds of ammonia per cubic foot of tank volume, by weight not more than 56 per cent of the water weight capacity of the container at 60°F.

37. Excess flow valves should be installed at the upper and lower connection of liquid level gauge. These gauges should be further protected with shut-off valves.

38. Magnetic, or rotary gauges are preferred to gauge glasses. Where glasses are used they should be protected against accidental breakage by a guard which will confine flying glass if they burst. As a further precaution, the two shut-off valves should be kept

closed and the glass drained except when a gauging is made.

39. Bulk storage containers should preferably be located above ground. They should rest on firm supports, preferably of concrete. Storage containers should be grounded. 2/0, solid, bare copper or its equivalent should be used for this. All joints in the circuit should be made with low resistance connections. Underground piping leading from storage containers will not provide a reliable ground. The corrosion resistant covering is a fine insulator.

40. Storage containers should be protected from the direct rays of the sun by a shed roof or a light-colored reflecting paint. Exposed piping should also be protected in the same fashion. Where storage containers may be exposed to high temperature they should be protected by water sprinklers which may be used to keep the internal pressure below the design working pressure of the tank.

41. Ammonia has physical properties similar to those of liquefied petroleum gas and occasionally LP-Gas storage facilities may be used to hold liquid ammonia. This is a dangerous practice and should be discouraged.

However, if this is done the brass and copper fittings and pipe commonly used on LP-Gas installations must be replaced with black iron or forged steel.

Refrigerated Storage

42. Cylindrical and spherical refrigerated storage containers should be built in accordance with the appropriate sections of the 1952 ASME "unfired pressure vessel" Code. Local ordinances may modify these requirements.

43. Refrigerated storage containers should be designed for a working pressure of not less than 60 psig.

44. At least two compressors should be provided for a refrigerated system, either one of which has sufficient capacity to handle the holding load. An emergency power supply should be available in case the usual source fails. It may not always be possible to vent ammonia and let evaporation maintain the internal pressure of the system.

45. If refrigerated storage systems and compressor rooms are not attended, they should be equipped with automatic alarms.

46. The filling connection should be fitted with an excess-flow or back-pressure check valve. All other connections except those for the safety relief valves and the suction line to the compressor should be equipped with excess-flow valves.

47. There should be at least two safety relief valves on every storage container each set to open at the design working pressure and to maintain the pressure at not more than 120 per cent of the design working pressure. The discharge should be vented well upward into the air where there will be no contamination problem. Discharge pipes should be fitted with rain caps or some other weather protection to prevent the accumulation of moisture. Provisions should be made to drain the condensate from the safety relief discharge lines.

Portable Containers

48. All portable containers, such as those commonly used in

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the direct application of ammonia as a fertilizer to the soil, or to transport ammonia from a supply station to the farm, whose construction and design is not governed by ICC regulation or local ordinances, should be constructed and designed for a working pressure of 265 pounds in accordance with paragraph UW 52 of the 1952 ASME Code. This is the same working pressure required by the Interstate Commerce Commission.

49. These containers should be securely fastened to the carrying vehicle so that even under unusual strain they will not shift on their mountings. All fittings, valves and gauges should be protected against accidental damage by substantial steel guards. Filler openings should be protected by a back-pressure or excess-flow valve. All other openings except those connecting with the safety relief valves should be protected by excess-flow valves.

50. Containers with a capacity under 1200 gallons should be protected by a single pressure-relief valve set to discharge at 265 lbs.; those of greater capacity should be protected by two pressure-relief valves set to discharge at 265 pounds. The relieving capacity of each of these valves should meet the flow rate requirements of the ASME Code (see table III).

51. Operators of ammonia transports of capacity under 1200 gallons should have the following equipment available to them for use in an emergency:

- 1 pair of gauntlet type rubber gloves
- 1 pair of acid type goggles
- 5 gallons of water in a large container

This equipment should be supplemented with:

- 1 full-facepiece gas mask with ammonia canister, and
- 1 carbon dioxide (20 or 25 pounds) or dry chemical (30 pounds) fire extinguisher,

for transports with capacities in excess of 1200 gallons.

Cleaning Storage Containers

52. When storage containers are to be cleaned, a section of the pipe leading to the container

should be removed. Blanking flanged unions is not always a reliable procedure.

53. The tanks should be purged with water and steam. Petroleum solvents should not be used to clean tanks used in ammonia service.

54. Men entering tanks should be provided with respiratory protection. The hose mask with blower has proven most satisfactory for this. Men working inside should wear life lines and rescue harness and some one should be stationed outside the manhole to tend the life lines.

55. All electrical equipment used inside the tanks should be grounded.

Piping and Fittings

56. Shut-off valves, relief valves and pressure reducing valves should be made especially to handle ammonia. This equipment is available from refrigeration supply houses and from some plumbing supply houses and differs from conventional fittings since it is made of extra heavy black iron or forged steel. Monel or resilient valve seats may be used. Lead seats are satisfactory in some service. Copper or copper bearing fittings or valve seats should not be used.

57. Piping should be extra heavy (ASA B36.10-1950 schedule 80) black iron on the supply side of pressure-reducing valves and of standard (ASA B36.10-1950, schedule 40) black iron on the discharge side of reducing valves. Galvanized pipe should never be used. Welded joints are preferred to threaded joints. Under no circumstances should brazed joints be used; they will deteriorate rapidly.

58. Where threaded connections must be made only schedule 80 pipe should be used. Freshly made up (within six or eight hours) glycerine-litharge joint cement may be used. There are also plastic-lead thread compounds on the market which may be used. These

do not freeze thread joints the way glycerine-litharge cement does. The joints should be made up tight.

59. Ammonia type tongue and groove flanges should be used. Two bolt flanges of this type are satisfactory for pipe sizes under 1 inch in the 2000 pound class or for pipe sizes under 1/2 inch in the 6000 pound class. Above these diameters, four bolt flanges should be used. If ordinary bolted flanges are used, they should be at least of the four bolt type regardless of the pipe size.

60. Wherever there is a possibility that an ammonia line may be closed at both ends while liquid filled, the line should be protected by a hydrostatic relief valve.

Leaks

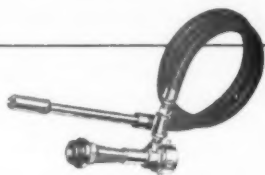
61. Ammonia leaks can be located by moving an open bottle of hydrochloric acid along the ammonia piping. A cloud of ammonium chloride mist will be generated near the leak. Sulphur tapers are not recommended; they may ignite escaping ammonia.

62. Leaks around cylinder valve stems can generally be corrected by tightening the packing gland nut which has a left-hand thread. It is particularly important that only the tools furnished by the ammonia supplier be used on cylinders, ton tanks and tank car valves. The leverage obtainable with longer wrenches may damage the valve and make the leak worse.

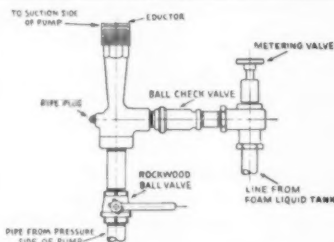
63. When leaks at valve stems or connections do not respond to ordinary tightening, the service department of the ammonia supplier should be called at once. Unfortunately there are no emergency leak kits on the market for ammonia similar to those available for chlorine containers.

64. If a serious leak in the container develops and cannot be controlled the container should be discharged into water. If there is no danger of contaminating an

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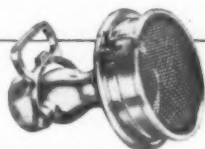
Foam Eductor introduces Rockwood FOAM into hose lines for use with Rockwood type FFF FogFOAM Nozzles. Connects discharge gate of fire trucks to hose line — hydrant to hose line — or one length of hose to another. In 1½" and 2½" sizes. Operates from 75 to 175 p.s.i. at Eductor Inlet. Approved by Underwriters' Laboratories, Inc.



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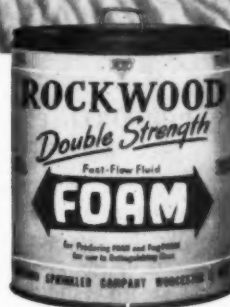
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area or endangering people, the ammonia can be discharged into the atmosphere where it will rapidly dissipate. Water from a hose may be played on the leak and a considerable portion of the escaping ammonia absorbed. If possible, the container should be turned so that the leak is uppermost. In this way only gas will be discharged and the water will have a better chance of absorbing the ammonia.

65. Water which has been used to absorb ammonia should not be discharged into municipal or confined sewers.

66. Under no condition should liquid ammonia be neutralized with an acid. This procedure would generate a great amount of heat and increase the volume of liberated gaseous ammonia.

67. Whenever a leak develops in an ammonia line or ammonia container, all personnel in the immediate vicinity should be sent away, upwind of the leak. Only trained personnel with proper protective equipment should be allowed to approach an ammonia leak.

PERSONAL PROTECTIVE EQUIPMENT

68. Men who regularly work with ammonia and are therefore liable to exposure to either the liquid or the gas should be provided with rubber or neoprene gloves, and chemical goggles. They should wear cotton clothing and underwear since it stands up best against ammonia.

69. Gas masks (approved for ammonia by the U. S. Bureau of Mines) with a full facepiece and green ammonia canisters (C) or a red universal canister (N) should be available in case of emergency. Under condition of extreme exertion these gas masks will provide respiratory protection only for about five minutes in concentrations of 3 per cent, or fifteen minutes in a concentration of 1 per cent, if there is no deficiency of atmospheric oxygen. A gradually

increasing odor of ammonia in the inspired air will warn that the canister is becoming exhausted.

70. The points in an ammonia system where leaks may develop can be anticipated and gas masks located accordingly. Workers should not have to move through contaminated atmospheres to reach respiratory protective equipment. Respiratory protective devices should be located just outside areas of possible contamination; at the doors of compressor rooms, for example.

71. No one can remain in an atmosphere with a concentration higher than 1.5 or 2 per cent of ammonia for more than 15 minutes without developing severe skin burns and blisters. For this reason respiratory protection alone is not enough.

72. Maintenance men and others who must work for more than a few minutes in concentrations higher than 1.5 or 2 per cent should be equipped with a one-piece rubber or neoprene suit, impervious to gas and sealed at the ankles, wrists, and around the face. The suits must be ventilated. It is impossible to work for more than one-half hour in a suit which is not.

73. The suit plus the full-face-piece gas mask will give complete protection for the life of the canister in atmosphere up to 3 per cent of ammonia. However, none of this equipment will protect against the freezing effect of evaporating ammonia.

74. Supplied air respirators, or oxygen breathing apparatus should be worn, along with the suit mentioned above, in unknown concentrations or in concentrations of ammonia above 3 per cent. Their useful life is determined by the size of the supply unit. They are cumbersome to wear in confined spaces. A hose mask with blower is useful in high or unknown concentrations. Its usefulness is limited by the length (150 foot maximum) of the hose which connects the mask with the blower unit. The

blower unit must be located to supply uncontaminated air.

75. For prolonged work in contaminated atmospheres a hose mask with blower will probably be most comfortable to wear. The resistance to normal breathing of this equipment is probably much less than of other types.

76. Workers should be thoroughly trained in the use of personal protective equipment and should automatically report any that is defective. This equipment should be inspected at regular intervals and maintained in first class condition.

77. Atmospheric ammonia will dissolve readily in perspiration. Therefore, persons who work for a long while in contaminated areas can expect some irritation due to absorbed ammonia at the crotch, armpits, feet, and wherever clothing is tight as under a belt, at the waist, or under a collar. Petroleum jelly spread at these places may provide some protection.

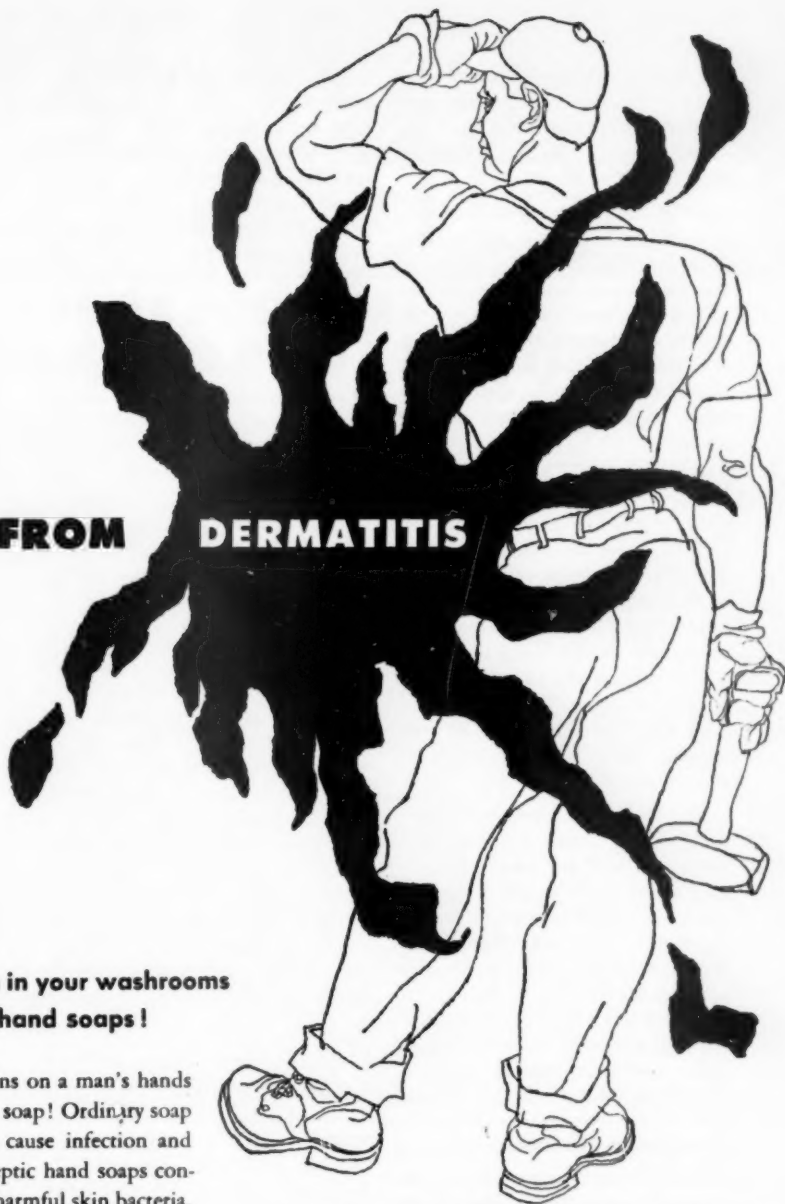
FIRST AID

Skin

78. Ammonia which has come in contact with the skin should be removed as soon as possible. Contaminated clothing should be removed and the affected skin areas flooded with large amounts of water for 10 or 15 minutes. The patient should see a physician as soon as possible. Extreme care should be exercised in removing clothing which has become frozen. Forcible removal may tear skin badly. Frozen clothing may be thawed with water at room temperature.

79. Safety showers should be conveniently located for people who are liable to be exposed to ammonia, but they should not be located where an ammonia leak may make them unusable. Showers should operate by pressure on duckboards or platform and should

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supply a gentle flood of water at a rate of about 30 gallons per minute. High pressure needle spray showers may irritate a severe ammonia burn.

80. When the ammonia has been removed from the skin, the burned area should be treated in the same fashion as any heat burn. Salves or burn ointment, however, should not be used until the burn area is at least 24 hours old. Instead it should be kept moist with a saturated solution of sodium thiosulfate.

Eyes

81. Ammonia must be removed from the eyes as soon as possible. Treadle- or brow-operated eye wash fountains or non-refrigerated bubblers should be available wherever there is the danger of ammonia in the eyes. The eyes should be forced open, the lids turned back and flooded for 15 or 20 minutes. If this is not done a serious loss of vision may result.

82. When the eyes have been flooded for 15 or 20 minutes the patient should be taken at once to a physician who has had some experience in the care of eyes. If the patient is in pain, a couple of drops of .5 per cent pontocaine solution may be put in the eyes or some other suitable water soluble surface anesthetic used. No oil or other non-water-soluble preparation should be put into the eyes.

Respiratory Involvement

83. Anyone overcome by an ammonia atmosphere should be removed to fresh air at once. He should be kept warm, artificial respiration (back-pressure, arm-lift or back-pressure, hip-lift) should be started at once if breathing is labored or has stopped. Oxygen should be given at the same time.

84. Symptoms of developing respiratory difficulty are hard to spot. Anyone who has been in a concentration of ammonia of above 1200 ppm for over half an hour without respiratory protection should be assumed to be in

danger and should be seen by a physician at once. He should be kept lying down, warm and not allowed to move. One hundred per cent oxygen should be administered against an exhalation back pressure of about 2 centimeters ($1\frac{1}{2}$) inches of water. Oxygen should be administered until a physician declares it no longer necessary.

85. The conventional symptoms of developing pulmonary edema must be watched for. Anyone exposed to ammonia who breathes in short, rapid shallow breaths should be immobilized and given oxygen. In most cases twenty-four hour bed rest under the observation of a physician will be necessary before it can be determined that the victim is out of danger.

86. Anyone who has been exposed to high or unknown concentrations of ammonia and who has ammoniacal breath, tightness of the chest, bloodshot eyes with swollen lids, and a cough which may discharge bloody mucus is in serious trouble. Such a person should be immobilized at once, his eyes washed, and oxygen administered as above immediately. He should be forced to lie down and kept warm. Medical assistance should be summoned to the patient at once.

87. If it is necessary to move the patient he should be carried on a litter or an improvised stretcher. Any sort of movement on his part will aggravate the developing edema and may result in death.

88. Definite first aid instruction should be given all men who work with ammonia. The plant physician must determine what may be done by the men and what by medical personnel.

DETECTION

89. There are several reliable analytic schemes for checking the atmospheric concentration of ammonia. Ten parts of ammonia per million of air will affect moist

commercial litmus paper in about 6.5 seconds and moist commercial phenolphthalein paper in about five seconds. 100 ppm of ammonia will affect moist phenolphthalein paper as soon as it is exposed and moist litmus paper in about one second.

90. Contaminated air may be collected in 0.1N sulphuric acid and titrated against 0.1N sodium hydroxide using methyl red as the indicator and a very accurate determination made. The Folin-Nessler reaction will give accurate determination even in low concentrations.

91. There are many standard chemistry texts which detail ammonia analysis schemes. Perhaps Jacobs, *The Analytical Chemistry of Industrial Poisons, Hazards and Solvents*; Interscience Publishers, Inc. is the most convenient to use.

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—To page 80

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Safety Films

Mining

Bar It Down (35mm silent slide-film or 2" x 2" slides) color. 30 frames. Production date, 1953. Deals with the most outstanding hazard found in most mining operations—falling rock or ore from drifts, stopes, and similar openings. Importance of removing loose rock or ore is emphasized and right and wrong practices are shown. Included are pictures of barring down from under timber protection, using bars of different lengths for different operations, standing clear of loose materials, etc. Both the script and pictures are primarily planned to create discussion. Source: National Safety Council. Availability Basis: purchase.

Railroads

Escape From Limbo (16mm sound motion) black & white or color. 26½ minutes. Production date, 1953. TV o/k. A railroad man, injured in a hunting accident, dreams he is dead and consigned to Limbo. The boss of Limbo forces him to return to earth to whisper encouragements to safety violators and help them have serious accidents. Returning

to earth as a ghost, he tries hard, but finds that his suggestions don't work. Because each man is his own protector or murderer, only the individual can be safe or cause accidents. Source: Unifilms, Inc., 146 E. 47th St., New York 17, N. Y. Availability Basis: purchase, rental.

The second quarterly Supplement to the *National Directory of Safety Films** is now available. Containing films not listed in the Directory or first quarterly Supplement, it also gives corrections and changes for films appearing previously in both publications. Single copies of the Supplements may be obtained from the Council free of charge.

Single copies of the *National Directory of Safety Films** can be purchased for 75c. Quantity prices will be given on request.

For further information on safety films, contact Nancy Lou Blitzen, Film Consultant, National Safety Council.

*The *National Directory of Safety Films* is a separately bound version of the *Current List of Safety Films* which appeared in the June, 1953 issue of NATIONAL SAFETY NEWS.

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Acknowledgement

This Data Sheet was prepared for the Fertilizer Section of the National Safety Council by Stewart A. Washburn, Senior Engineer, Industrial Department. It has been reviewed by the Safe Practices Conference Committee and approved for publication by the Industrial Conference of the Council. It is reprinted from the February 1954 issue of the National Safety News.

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(From page 39)

those assigned to it. In direct charge of SAC's ground safety program is Major Willis H. Wood, who is assisted by a staff of civilian safety engineers and military safety technicians. A similar staff is maintained at each of the bases.

At major subordinate command headquarters, regulations call for the establishment of an adequate ground safety staff. This staff is responsible to the commander for carrying out the program under the administrative supervision of the staff personnel officer.

At installations, the organization is augmented by employing a qualified civilian safety engineer and allocating airmen safety technicians to the staff as needed. From the organization standpoint, the ground safety function is placed within the air base group, the supporting organization of the base, where the ground safety officer is directly responsible to the base commander for carrying out the program. From here on, the activities parallel those found in well-regulated civilian industry, complicated by special problems common to military service and a few peculiar to the Air Force.

An Air Force base is practically a self-contained community. It provides municipal services, and the larger bases contain a fairly representative cross section of business and industry. Activities on the base may range from barber shops and beauty parlors (military services have been coeducational since World War II) to metal-working shops and electric furnaces. There are hospitals and churches, and some schools.

The exposure picture of an Air Force base is complicated by continuous developments in military aircraft. Hangars once large enough to house all planes are now as obsolete as the home garage built for a Model T Ford. Newer planes are often too big and powerful to taxi into parking

space; they must be towed into place by a tractor, like a liner being towed into dock by a tug.

One of the current problems is the A-2 aircraft towing tractor, a powerful and versatile work horse but one full of expensive possibilities in the hands of a negligent operator. The A-2 has a divided cab—one side for the operator and the other for service personnel. The driver's compartment is raised while towing to permit full visibility and lowered for parking or other special purposes. Contrary to rules, passengers sometimes ride with the driver, which doesn't help safe operation. There is a strict rule against any vehicle passing under the wings of aircraft, but drivers of A-2 tractors have been known to ignore the rule—sometimes without lowering the cab.

With airfields covering vast stretches of land, the runways must be shared by taxiing planes and by surface motor vehicles of various types. With planes often parked at some distance from the base operations office, transportation must be provided for passengers and crews. Fuel trucks and service vehicles add to the airfield traffic. Intriguing to civilians are

the "Follow Me" vehicles which meet incoming planes and guide them to parking places. And crash trucks, fire trucks and ambulances are always at hand for an emergency.

Volatile fuels are the lifeblood of aviation and their storage and handling are major problems at an AF base. Static, a hazard which is present much of the time in all parts of the country, is particularly severe in the dry climate of the southwestern desert bases, as I was reminded every time I got in and out of a car. Extreme precautions in grounding are needed, and in some locations ground rods are driven as deep as 10 feet into the earth to obtain sufficiently low resistance.

To reduce tank-truck handling, with attendant risk of spillage and fumes, underground pressure systems are being installed. These huge underground systems cut down the time needed for refueling, and the new jet planes have tremendous appetites. Jet fuel is a medium hazardous fuel, with vapors in the explosive range, and ordinary methods of storage and handling are not adequate from the safety standpoint.

Nature in her wilder moods causes further hazards. Many SAC bases are located in the territory between the Mississippi River and

—To page 84



Some of the newer planes, too large and powerful to taxi into parking space, must be towed into parking space. Frank Davin (left) and Carman Fish watch an A-2 towing tractor in operation at March AF Base.



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Freedom's Iron Fist

—From page 82

the Rocky Mountains where tornados are endemic. A tornado warning for the region may cause the crews to be alerted to get as many of the planes as possible off the ground and out of the path of the storm. High winds may occur anywhere and rings embedded in the concrete runways are used to tie down the planes. In the northern regions snow removal is a job of immense proportions, and in some regions floods have proved to be an additional menace.

Rattlesnakes, a hazard often exaggerated in the popular imagination, are encountered occasionally in some areas. At one base, an airman who is an expert snake catcher supplements his service pay from rattlers caught in adjacent areas and sold to snake farms for the manufacture of anti-venin.

Hangars, airfields and shops maintain standards of housekeeping and safeguarding comparable to those found in the better plants in private industry. The military tradition of "spit and polish" has carried over into reasonable standards of appearance and cleanliness of plant and equipment. Machines and backgrounds are painted according to functional color schemes and supervisors take justifiable pride in the appearance of the premises. "It takes a lot of oil absorbent to keep these floors clean," one supervisor remarked.

Servicing of aircraft in hangars and on landing fields calls for a variety of portable scaffolds and work platforms, some of stock design and others made according to Air Force specifications. These range in size from a few feet high for jet fighters to the five-story models, 57 feet high, used in servicing the empennage of a B-36. Out on the airfields docks have been erected for planes too large to be accommodated in hangars. Movable work platforms and scaffolds are painted a conspicuous yellow, accentuated where desirable by black stripes. At first some of the docks were also

Quotable Quotes

. . . From DR. J. L. ROSENSTEIN

Some of the causes of emotions are unpleasant experiences, severe mental or physical pain, continued repetition of a "touchy" subject, too sudden or too forcible stimulation, thwarting of desires, and threats to safety or security.

* * *

Annoyance and fear lead to anger, antagonism, antipathy, hatred, insubordination, and even attempts at reprisal. In industry "getting even" may take the form of stealing, fomenting labor troubles, and sabotage.

* * *

Forgetfulness on the part of the worker in industry may be an unconscious form of saying, "You have been unfair and I don't like you and I don't care to do as you ask."

* * *

Forgetfulness on the part of an employee who is otherwise an intelligent worker may indicate that there is something wrong in the relationship existing between the foreman and the workman. It might indicate a definite need on the part of the foreman to take personal inventory. It may mean he has done a poor job of directing, training, or disciplining in the past.

Dr. J. L. ROSENSTEIN is Industrial Psychologist, University of Miami, Coral Gables, Fla., and formerly Professor in the Department of Management at Loyola University, Chicago. These excerpts are from his *One Day Course in Human Relations for Supervisors*.

painted yellow but it was found that this was too much of a good thing. Docks are now painted a neutral gray.

Along with the increasing accident risks that accompanied air base expansion are numerous health hazards. At some of the larger installations foundries are operated and castings are finished by abrasive blasting. Here medical officers are constantly on the lookout for symptoms of silicosis.

Paint and dope shops, battery shops and electroplating departments are other locations requiring high standards of ventilation and constant health supervision. Handling radioactive luminous compounds presents another health problem. Tests of workplaces to make sure that air contaminants are below maximum permissible concentrations are conducted reg-

ularly and men exposed to health-hazardous materials receive regular physical examinations.

Extensive use is made of detection devices, including indicators for combustible gases, carbon monoxide, and oxygen deficiency. In connection with the occupational hygiene program, sampling devices are used to test the workroom air in suspected locations. Wherever the hazard requires special equipment and technicians not locally available, application is made to the surgeon at Wright-Patterson AF Base, Dayton, Ohio.

But in spite of all these occupational hazards, base commanders and ground safety staffs would feel they had a comparatively simple time if they had only on-the-job accidents to worry about. It is the off-duty accidents, both on and off the post, that pile up so much

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of the lost time, as will be observed from the charts conspicuously displayed at each ground safety office.

SAC's experience with off-post accidents has been similar to industry's, the proportion of accidents occurring away from quarters and work places to those on the job being approximately three to one.

Operation of private motor vehicles, in which the airman is either driver or guest, is responsible for a disturbing number of injuries. During off-duty hours, both on and off the base, they also indulge in such sports as swimming, fishing, hunting, boating, baseball, football, and other pastimes. The average age of Air Force personnel is below the average for industry—about 22 years—and youthful exuberance is a problem well known to insurance companies.

Another recurring but lesser source of injuries comes under the general classification "social activity."

"Unsurprisingly," the *Accident Prevention Handbook for Air Force Personnel* observes, "altercations are almost always associated with indulgence in intoxicating beverages, and not infrequently the opposite sex is involved."

Accident Reporting

Because of conditions peculiar to military operations, certain departures from standard practice in accident records have been found desirable. The Air Force employs civilian workers as well as military personnel and the exposure for each group is computed on a different basis.

Since airmen are considered as on duty 24 hours a day while on the base, the exposure is expressed in man-days. The military injury rate, therefore, is: Injuries multiplied by 100,000 divided by man-days of exposure.

The civilian injury rate is expressed in man-hours: Injuries multiplied by 1,000,000 divided by the number of man-hours of exposure.

To measure the cost of accidents and progress in prevention,

the USAF Accident Cost Index has been devised, with a table of standard injury costs putting a price tag on every type of mishap. For a first-aid case without lost time, either civilian or military, the charge is \$7. A temporary total disability case costs \$30 a day for military personnel and \$14 for civilian; permanent partials, \$43,000 and \$10,500; permanent totals, \$63,500 and \$70,000; fatalities, \$31,500 and \$25,000.

Like many an industrial concern, SAC has been confronted with the paradoxical situation of decreasing accident rates without a corresponding reduction in accident costs. In spite of notable accomplishments, costs have been practically stationary. The reason is that there has been a substantial increase in the charges for all classes of injuries in the Standard

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Knowledge of our duties is the most essential part of the philosophy of life. If you escape duty you avoid action. The world demands results.

—George W. Goethals

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Cost Index. A military fatality, for example, which once cost \$19,500 is now charged at \$31,500. So a budget-minded Air Force is anxiously watching the accident cost reports.

Organization and Promotion

At USAF HQ (you soon get into the military habit of using initials) constant study is going on in the engineering techniques of accident prevention and occupational hygiene and the Air Force works closely with such organizations as National Safety Council, American Standards Association and government agencies, including the Federal Safety Council, Department of Labor and National Bureau of Standards.

Basic textbook for ground safety staffs at all installations is the *Accident Prevention Handbook for Air Force Personnel*, an admirably

concise and comprehensive work, comparable in scope to National Safety Council's *Accident Prevention Manual for Industrial Operations*. It is beamed specifically at ground safety problems of physical safeguarding and safe operating practices, from guards for circular saws to laying out a baseball diamond, and from refueling aircraft to getting back to base late at night without getting slugged by hoodlums. Replacement pages for the *Handbook* are sent out from time to time as experience makes revision necessary.

The Air Force believes in education and publicity and much promotional material is sent out with the technical publications. USAF posters and pamphlets are produced and used in large quantities in addition to services secured from the National Safety Council.

But the Air Force doesn't depend on HQ alone to carry on the safety program. Each installation has its own problems, affected by varying terrain and operating problems, and each is encouraged to use initiative and ingenuity with results as the measure of effectiveness.

If signs indicate safety-mindedness, there are few industrial concerns that outdo the air bases. At each of the bases I visited there were conspicuous reminders of seasonal hazards and announcements of days operated without accident, on the ground and in the air. Posters are used liberally, including those produced by SAC talent, of which there seems to be plenty. Base newspapers carry regular safety stories.

Training has always been an essential part of military procedure and with the increasing complexity of defense measures, more technicians of various types are found in the services, particularly in the Air Force. Job training must be more thorough and safety has become an integral part of instruction, from indoctrination through the supervisory levels.

To serve as a top level local safety policy agency, a ground

safety council has been established at each installation. The commanding officer, or his representative, presides as chairman and the ground safety director acts as adviser. Membership of the council includes the air inspector, personnel officer, medical officer, provost marshal, installations officer, motor transport officer, and other key personnel whose duties are involved in the safety program. Meetings are held monthly.

Fortunately, our itinerary coincided with the regular meeting of the Ground Safety Council at Barksdale AF Base, Louisiana, at which Major General Frederic E. Glantzberg, former commander of the 4th Air Division, presided. Except for the uniforms, it might have been the executive safety committee of some large industrial corporation. Traffic problems on the base and in the surrounding area occupied most of the discussion. There was a great deal of satisfaction over the record of 216 deathless days established at the base but there was considerable apprehension over the hazards to personnel through the holiday season. It was urged that individual counseling and additional publicity be concentrated on holiday safety.

In the varied operations around an airbase, personal protection plays an important part, and considerable space is devoted to the subject in the *Accident Prevention Handbook*. Emphasizing the fact that personal equipment is not a substitute for normal corrective or control measures, commanding officers are authorized to direct the use of necessary safety clothing and equipment.

Approved items are specifically authorized and available for use by Air Force personnel. When special items are necessary, selection is made carefully, with consideration to the protection afforded, comfort of the wearer, availability of the item, cost and use limitations. In selection of equipment, Federal Specifications are followed.

Where equipment is essential, requisitions for authorized items are submitted in accordance with current supply procedures. Requests for special issues of non-

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listed items are approved where the need is indicated. Local purchases may be made when authorized by directive, prescribed by the responsible supply service, or in an emergency.

Standard items of equipment, such as safety shoes and rubber gloves, may be obtained for civilian employees on a reimbursement basis through ordinary supply channels.

Personalized items, such as leather gloves, coveralls and safety shoes are furnished by civilian employees when considered essential tools of the trade. Safety equipment not in this category and clothing not suitable for street wear, or clothing subject to extreme wear on the job is furnished on a loan basis.

Personal protective equipment required for continuous use is issued to military and civilian personnel in the same manner as other authorized equipment. At each installation provisions are made for safety equipment pools. Periodic inspections are made to determine the condition of equipment on hand. Special equipment, not regularly used at an installation, is available on loan from Air Materiel.

Because of the static hazard around volatile fuel, conductive shoes are worn in many locations. These shoes are cleaned and tested regularly and must not be worn outside the building where they are needed. Extreme care must be taken to keep the floors clean and free from wax, oil, and other substances which increase electrical resistance.

Non-sparking conductive shoes with no ferrous metal in soles and heels are worn where it is necessary to enter tanks which have contained gasoline or other flammable substances and where there may be flammable or explosive concentrations in the atmosphere.

To an even greater degree than in other branches of the armed services, the Air Force has been confronted with problems associated with technical developments. Not so many years ago a hangar was only slightly more complicated than a well-equipped automobile service station. Now, an Air Force base presents several

square miles of operations, many of them highly technical and some extremely hazardous. And progress in aviation, both civil and military, is continuing at a breath-taking pace. This means that safety staffs at all levels must be alert for potential hazards in all developments.

Since the outbreak of fighting in Korea in June 1950, the accident prevention program has faced some intensified problems. The building up of the Strategic Air Command under the energetic leadership of General LeMay has meant the activation of new bases and the conversion of old ones. And since the suspension of active hostilities the turnover of personnel and the influx of young, inexperienced airmen has meant stepping up the indoctrination and training programs.

Award of Honor to SAC

In spite of these obstacles, SAC has been rolling up notable reductions in accidents. For 1951 and again for 1952 its accomplishments were recognized by the National Safety Council's top award—the Award of Honor. Returns for 1953, still incomplete at the time of writing, indicate another year of accident prevention accomplishment.

An Air Force Base, although practically a self-sufficient community, does not regard itself as functioning apart from its neighbors. It supports many civic movements and is proud to be a very definite part of the greater community. It recognizes responsibility for the safe operation of government vehicles on public highways and for private cars driven by Air Force personnel.

Summarizing the factors which have contributed to the success of the program, there are several outstanding points.

Conspicuous among these is commander participation in what Major Wood describes as "a star-studded program." This participation holds for all commanders from General LeMay down to the unit commanders. They address open letters to members of their commands, preside over meetings of the Ground Safety Executive Safety Council, and review acci-

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dents. When an award is presented, an officer of high rank takes part.

The all-inclusive personnel safety training program includes mandatory indoctrination for all newly assigned personnel and there are courses in ground safety fundamentals for supervisors. Job safety analyses by individuals and supervisors provide important data on safe methods.

Along with commander leadership and participation has been competent staff direction. All military and civilian staff members have been trained at formal USAF schools in addition to their professional backgrounds. Several of the civilian safety engineers have been on the job for 10 years. Many base safety directors are presidents of Federal Safety Councils in their locales and are active in state and local safety organizations.

Improved accident investigation procedure has pointed the way to many preventive measures. A board of investigating officers investigates serious accidents and the Air Police are trained for preliminary on-the-spot investigations. There is emphasis on investigating the "pre-impact" activities of individuals during the preceding 24 hours.

A thorough and comprehensive system of records and analyses has been developed. Detailed analyses and trends are kept at all levels of command, with IBM records at SAC headquarters. Periodically commanders are briefed on the current situation and special studies in problem areas are published.

Inspections are frequent and thorough. At least once every 90 days all activities, facilities and areas must be inspected. In addition to those planned and scheduled, there are spot and/or special inspection of the more hazardous locations as considered necessary. There is a systematic follow-up of reports to make sure corrective action is taken when necessary.

As in the civilian areas of acci-

Fork Truck Drivers Are Picked Men

COMPETITION for fork truck drivers is responsible for increased safety for the truck operators and decreased operating costs and equipment maintenance charges at American Finishing Company, Memphis, Tenn.

Each truck is assigned to a certain driver. If he is caught handling his equipment in a rough manner, or damaging material with his equipment, he is warned. The second offense means a one-day layoff. The third offense demands a one-week layoff. The fourth offense automatically calls for discharge. The second or third could conceivably call for discharge, if the extent of the damage or the employee's attitude warranted it.

When the company receives a new truck, selection of the driver is contingent upon his safety record and his cost record of truck operation. In assigning new equipment to the driver, the com-

pany points out the reasons for his selection.

Proof of the success of the operation: competition is so keen for a truck job, that it takes five years to become eligible.

Costs have tumbled. For example, cost of operation of a single truck for an entire year, including amortized cost of the truck, is only \$1358.94. This equipment runs in some departments during three 8-hour shifts, bringing down the average cost to \$452.98 for one year for one 8-hour shift per day.

The trucks have compiled an amazing record for efficient handling. Carloading time has been slashed from 28 to 1.3 man-hours; workers formerly used for this back-breaking task have been freed for more productive jobs within the company. The trucks have also increased use of storage space 250 per cent; a truck stores 51 palletized rolls in space previously occupied by fifteen.

dent prevention, enforcement is an essential part of the program. There is prompt discipline for the man who is a hazard to himself and others through violation of military and civilian laws, both on and off duty.

From SAC Headquarters there is a constant flow of safety material to all units. During 1953 the film library issued films reaching an audience of 250,000. The poster program involved the distribution of 153,840 safety educational units during the past year. *Flashes to the Field*, SAC's Safety Memo, carries brief, timely items of safety information throughout the Command.

Each month during 1954 a special phase of ground safety is being emphasized. Specific subjects

are selected for emphasis each year, an example being the "Safe Wheels" program which has been notably effective against accidents both on and off the bases.

The 1954 program also calls for awards to bases establishing the best records in three areas:

1. Safest SAC base—over-all safety record.
2. Best vehicle program.
3. "Outstanding Contribution to Safety" award.

To the taxpayer, this approach has resulted in the saving of millions of dollars through the conservation of equipment and trained personnel. And to the defense of all countries which still maintain freedom, it is helping to keep the planes flying—ready to accomplish the mission to which they have been dedicated.

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FOR EXAMPLE:

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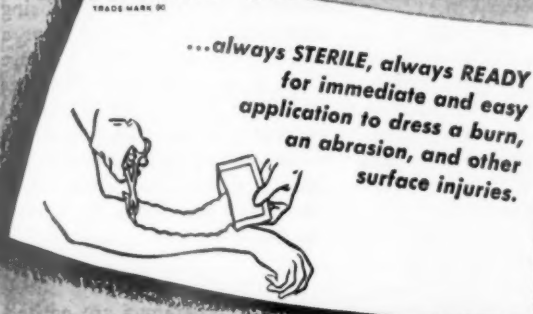
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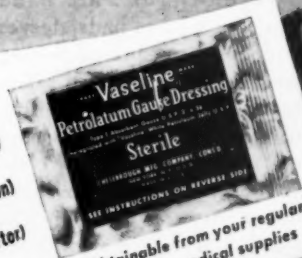
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Speeds Handling of Casualties



In the event of a civil defense emergency, this litter-cot used by New York (State) Civil Defense could aid the handling of litter patients. The light-weight aluminum units, serve as a litter and can be used as a temporary hospital bed. In this picture, the occupied litter-cot is stacked upon another which has its legs folded to be used as a stretcher.

ALUMINUM has given civil defense workers a "lift" in a new, light-weight combination litter and bed that should facilitate the handling of litter patients during a disaster.

The aluminum unit is both hospital stretcher (litter) and sleeping cot. As versatile as a Boy Scout pocket knife, the litter-cot will serve in civil defense emergencies or disasters as a stretcher and as a stand-by hospital bed which can be stacked in tiers like bunk-beds.

These emergency units are particularly useful for aid stations, industrial plants, fire departments, highway police, hospitals and mine safety departments. Added to these are the more peaceful uses as a bunk for the hunter or fisherman, or even as an extra bed for the home-owner when a guest drops in unexpectedly.

The litter-cot was designed by Simmons Machine Tool Corp. with the aid of engineers from Aluminum Company of America. The basic idea, however, came from the New York Civil Defense Commission and the New York State Health Department.

The cot is light enough (27 pounds) to be carried by housewives and teenagers if necessary; yet it is strong enough for two, three, four or even more occupied litter-cots to be stacked on top

of one another like bunk beds.

The combination stretcher and cot is comfortable for extended periods as a bed. Four inches wider than the conventional litter, the unit is 26 inches wide and 7½ feet long. A strong canvas sling forms the bed of the cot.

Almost any common load-carrying vehicle can be converted into an ambulance, with the use of the litter-cot. It can be transported in small delivery trucks, large trailers or railroad freight cars. By stacking the units against the walls of the vehicle and placing an adjustable bracing bar between the two rows of litter-cots, they stay in place. An aluminum irrigation rod for holding plasma bottles can be attached to any of the four legs.

The litter-cot has legs which can be folded under when it is being used as a litter. When used as a cot, the legs are extended as are those on a card table. The legs fold at a hinge joint or "knee" and lock automatically in both extended and folded positions. The feet on the legs are adapted to allow the litter-cots to be stacked like bunk beds.

Nobody's opinions are entirely worthless. Even a stopped clock is right twice a day.

Dr. D. B. Armstrong Retires

FUTURE PUBLIC HEALTH gains in the United States and Canada are most likely to come through progress against the chronic diseases, accidents, overweight, and mental illness, according to Dr. Donald B. Armstrong, public health authority and for many years second vice-president of the Metropolitan Life Insurance Company in charge of the company's health and welfare division.

Dr. Armstrong retired from this latter post December 31 after 37 years of association with the Metropolitan's campaign against avoidable illness and premature death. He has directed the campaign since 1931. He was vice-president of the National Safety Council for homes, 1944-51.

A major aspect of the activities which Dr. Armstrong has guided has been the development of the Metropolitan's booklets on health and safety for policyholders and the general public.

Dr. Armstrong joined the Metropolitan when he was appointed executive director of the famous Framingham tuberculosis and public health demonstration in 1916. His first official title was assistant secretary. He was advanced to fourth vice-president in 1929, to third vice-president in 1931, and to second vice-president in 1944.

The Framingham demonstration, which was conducted by the National Tuberculosis Association under an appropriation granted by the Metropolitan and was the first such project ever undertaken by any organization, had as its primary aim the reduction of the tuberculosis death rate. Using the entire community of Framingham, Mass., as a proving ground, the demonstration showed that not only the tuberculosis death rate, but the deaths from other diseases as well, could be reduced when proper measures for their discovery and treatment were taken.

Dr. Armstrong, who was born in 1886 at Bangor, Pa., holds degrees from Lafayette College, Massachusetts Institute of Technology and the College of Physicians and Surgeons, Columbia University. He is a diplomate of the American Board of Preventive

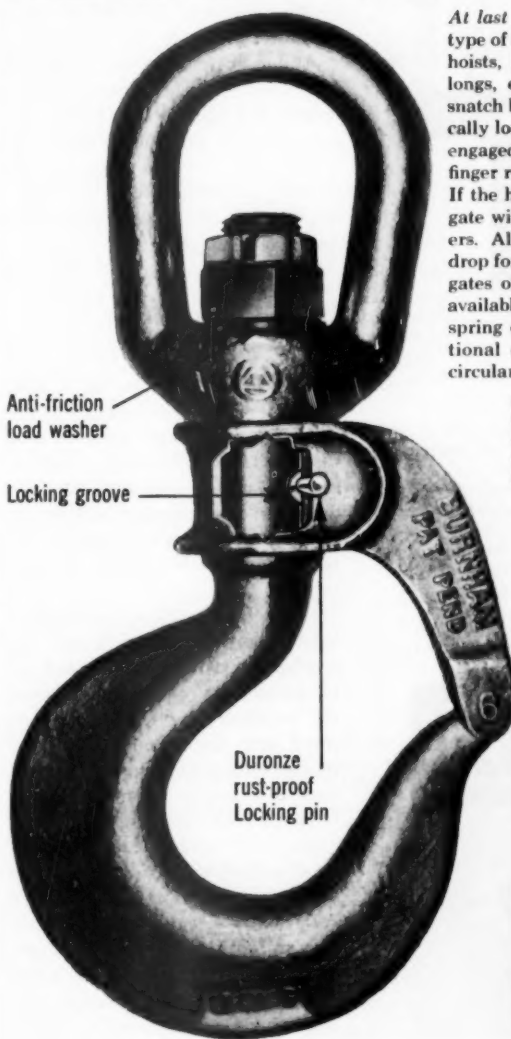
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At last a 100% safe hook for every type of equipment; utility and chain hoists, horizontal tuggers, come-alongs, cranes, block and tackle or snatch blocks. Safety gate automatically locks closed and cannot be disengaged accidentally. A touch of the finger releases the lock to open gate. If the hook is sprung, even $\frac{1}{4}$ inch, gate will swing free, warning workers. All hooks used are standard drop forged hooks with B & B safety gates of non-corrosive brass. Sizes available #2 through #16A. Return spring on gate is available at additional cost. Write for descriptive circular.

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Medicine and Public Health.

He has been chairman of the executive committee and is now a member of the Medical Information Committee of the New York Academy of Medicine. He has served as president of the New York Public Health Association, the American Museum of Safety, and the National Health Council. He has been a member of the executive committee of the State Committee on Tuberculosis and Public Health of the State Charities Aid Association since 1931. For many years he has been a member of the committee of consultants to the Division of Public Health Education of the New York State Department of Health; and vice-chairman of the Department's Committee on Tuberculosis Control. He was vice-chairman of the General Advisory Committee of the National Foundation for Infantile Paralysis.

Although retiring from active service with the Metropolitan, following a period of travel with his wife he will continue to serve on a voluntary basis on a number of boards and committees of public health associations and as a public health consultant.

Hazard Hunting

—From page 31

15-cubic yard scraper in a few minutes. Then the scraper is off onto the road that leads to the disposal area. With the loading machine performing automatically and the earth-moving equipment moving at a constant pace, no interruption of this traffic is permitted.

A good example of preventive safety work is found where the established road for the usual type of automotive equipment crosses the earth-moving lanes. Red-lettered stop signs and white road markers have been placed to halt cars and trucks about 25 yards from the earth-moving lanes. An experienced traffic dispatcher equipped with a red flag controls the movement of traffic and does so in such a way that the earth-moving equipment does not have to change its pace—it has the right of way. Breaks between the earth-moving equipment last from

30 to 60 seconds, so the job of the traffic dispatcher is exacting.

Another noteworthy item is the maintenance of the roads used by the earth-moving equipment. A firm, solid road-bed is a necessity for the fast traveling scrapers which will weigh about 25 tons when loaded and can move at a 30 to 40 mile-an-hour clip. On the day preceding the inspection trip, the project had been saturated with a heavy rain. The earth-moving lanes were kept in good condition by the constant use of a motor grader to move mud from the road bed. Eight hours after the rain the earth-moving equipment had a solid dry road while the surrounding area was a sea of mud and water.

Next we examined the boom on an excavation crane. The safety engineer made his inspection and noted that the boom is rigged with a "boom-stop." A boom-stop is a cable attachment from the boom to the bed of the crane to prevent the boom from rising to a point where it will cause the crane housing and trackage to topple over due to imbalance. If a crane does not have built-in features for automatically stopping the boom before the danger point is reached, it is standard practice in the Philadelphia District to require the boom to be rigged as described above. Two other cranes were examined nearby and both were found to be equipped properly—one with a built-in boom-stop and the other with a cable attachment.

In the same area, the Safety Engineer noted that considerable steel had been erected for a hangar. On this particular day winds were gusty and the structural steel in place was being subjected to heavy pressure. The safety engineer moved in for a closer inspection. He found that the safety rules were being followed to the letter. Any steel member that was not anchored firmly in place was being held within safe stress limits by the installation of guy wires.

The next stop was a partially erected building. A scaffold about six feet high had been placed around the building to facilitate the placement of the concrete block for the walls. The safety engineer

noted the scaffolding did not have a guard rail to protect workers from falling off and that no toe board had been provided to protect workers at ground level from tools slipping off and striking them.

In the Philadelphia District, an Accident Prevention Board has been appointed to review all circumstances connected with accidents, their causes, and whether safety requirements have been violated. In some instances, the Board has found that accidents were caused by faulty design of equipment. When this was called to the manufacturers' attention, several companies sent their design engineers into the district to investigate. After consultation with the safety engineer, some of these design engineers have agreed to incorporate changes in their equipment to eliminate the hazards inherent in the design.

But accidents cannot be eliminated by the safety engineer alone. They can, however, be held to a minimum when the safety engineer and the workers on the job cooperate to eliminate unsafe acts and conditions. When a worker is injured through some fault of his own, the safety engineer can only feel sorry—he can't feel the pain.

Rays That Injure Eyes

—From page 23

presence of a mucopurulent secretion in the eye. At times there is an impression of a fog or haze. The condition usually clears up completely in 12-24 hours.

3. *Snow Blindness*—This condition, sometimes called glacial sunstroke, snow ophthalmia or ophthalmia nevalis, is not caused by the snow but by the infrared rays which are reflected from the snow. Skiers and mountaineers, after a prolonged exposure to snow, may be affected. It usually occurs at altitudes of over 1,000 feet and may occur in overcast weather as well as in bright sunshine.

The patient usually experiences signs of irritation, and feels as if he has sand under his eyelids, after approximately 10 hours of exposure to the sun. The conjunctiva becomes red and swollen; pain in forehead and photophobia



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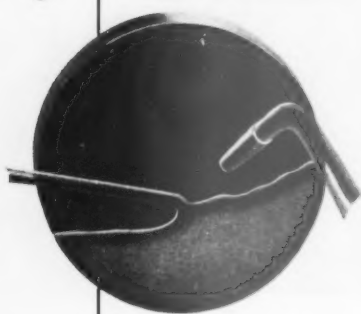
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EYE STRAIN GONE—mistakes reduced—production speeds up!

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occur. In severe cases, one can see erosions on the cornea. The patient is prevented from opening his eyes because of the violent spasms of the eyelids.

These are the cases which are referred to inaccurately as snow blindness, since the patient is prevented from seeing because of the intense spasm and swelling of the lids. When the acute symptoms subside, the patient usually complains of a dazzled condition; later on, a sense of failure of the illumination of objects, and also of seeing black or red spots, or even a large central area of darkness.

In a few days, complete recovery occurs. There is adequate treatment, but emphasis should be on preventive measures.

4. *Conjunctivitis in Motion Picture Studios (Klieg Lights)*—Powerful arc lamps or mercury vapor lamps were formerly used to light up motion picture studios. Eye problems because of this type of illumination were quite frequent (20-70 per cent). These lamps have been long replaced by improved light fixtures and with it have gone the high frequency of eye complaints.

The symptoms, which would come on seven to eight hours after exposure, were watering of the eyes, swelling of the eyelids, redness of the conjunctiva, and a sensation of pin pricks under the eyelids. Headaches and sleeplessness occurred. Under special methods of examination, erosion of the cornea could be seen.

In spite of the violence of the symptoms, complete recovery was usually obtained in two or three days. In some cases, however, blurred vision and inflammation of the eyelids persisted for a period of time.

5. *Infrared Radiational Cataract (Glassblower's Cataract)*—As early as 1739, Heister noted the relationship of heat to cataract. Wenzel in 1786 stated that individuals exposed to fire frequently developed cataracts. In 1930 Mackenzie stated that glassblowers and workers exposed to strong fires are subject to cataract.

Glassblower's cataract is not confined to glass workers but is also found in other workers ex-

posed to glowing heat of very high temperatures, such as iron smelters (puddlers), chainmakers, tinplate millmen and gold smelters, over many (25 or more) years and when no form of filter glass has been used.

Legge in 1915 found in 87 glassblowers over 30 years of age, 22 cases of lens changes. He found that in glassblowers between 30 and 40 years of age the incidence of lens changes was five times that found in the normal population. The greater incidence of heat cataract among old workmen is due not only to the greater number of years of exposure to heat, but also to the fact that the older lens absorbs more infrared rays than the younger and softer lens.

Ultraviolet rays were thought by some writers to be active in the production of heat cataract. This theory has been disproved many times, especially by Dr. Crooker's demonstration showing that the chief rays emitted from glowing glass are infrared, with the radiation decreasing towards the violet end of the spectrum. Hence the great majority of investigators believe that glassblower's cataract is produced by the action of infrared rays ranging from 7,500 to 24,000 Angstrom units when exposure is over many years.

Prevention of this condition depends upon the provision of suitable screening devices in the form of shields or goggles. There is an obvious practical difficulty in the latter form of protection, because in absorbing the heat rays the goggles themselves become heated, causing considerable discomfort to the worker.

6. *Eclipse Blindness*—This type of blindness occurs periodically during the occasion of observing an eclipse. Some have imagined that the use of a mirror would eliminate the danger, which is erroneous because the mirror reflects the rays to the eye.

Insufficiently smoked glasses may fail to provide adequate protection. Eclipse blindness is due to the focusing of intense heat (infrared) on the macula, the center of fine visual acuity. Usually the better eye, used for gazing at the eclipse, is involved.

The symptoms of eclipse blindness may not appear for several hours or a day following exposure. The patient experiences a partial loss of visual field, metamorphosia (change in shape of objects), and erythropsia (red tinge to objects). In mild cases, the loss of visual field is transient, but in moderate and severe cases there is permanent partial loss of vision and permanent loss of part of the visual field. In some cases a permanent defect for yellow has been described.

During World War II, anti-aircraft personnel (spotters) suffered from macular lesions as a result of infrared exposure to their eyes while searching for enemy aircraft because they were unable to avoid looking directly into the sun.

7. *Miner's Nystagmus (Dancing Eyes)*—By the term "nystagmus" is meant a condition wherein the eyes involuntarily oscillate rapidly either in a vertical or a horizontal direction, or it may be described as rotatory or rolling movements of the eyes. This condition is rarely seen in this country. In Great Britain and on the continent it is an occupational disease of great importance. The cause is still indefinite. Some investigators believe it is due to the need on the part of the miner to look upward constantly while undercutting the seam of coal. Some believe it to be a neurosis. However, most investigators are beginning to believe it is due to inadequate illumination in British mines.

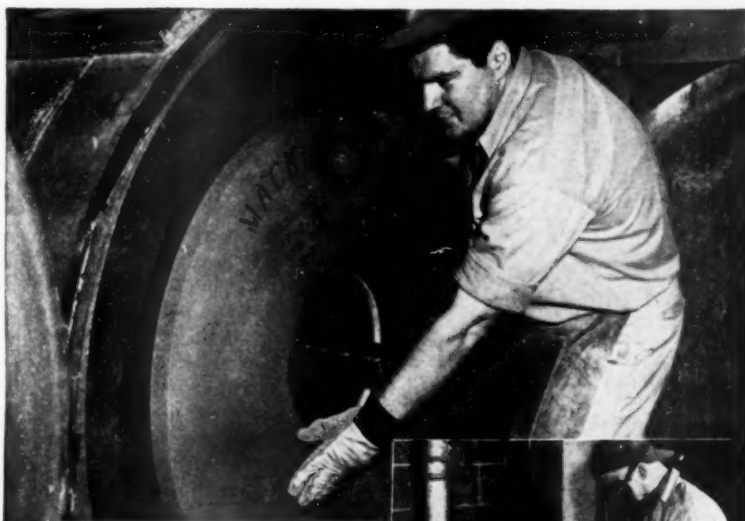
8. *X-rays and Gamma Rays*—X-rays, which are derived from artificial sources, and gamma rays, which are derived from radioactive substances, produce a variety of changes in the eye dependent on the penetration properties, which is a function of the emission voltages.

a. *Grenz Rays ("Soft" X-rays)*—Rays of low voltage (eight to 25 kilovolts) give rise to soft x-rays (Grenz), which are relatively non-penetrating. These rays produce superficial effects such as changes in the outer layers of the eye (keratoconjunctivitis) and skin.

b. *Gamma Rays ("Hard" X-Rays)*—X-rays of voltages of 100-1,000 kilovolts have greater penetrating power and produce not only superficial changes but also damage to the interior of the eye,

Job-fitted gloves outwear leather 3 to 1 handling grinding wheels

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All Macklin wheels of 6" diameter or larger are speed-tested. Edmont rubber-palm Grab-it gloves outwear leather 3 to 1 on this operation.

A company that designs grinding wheels to fit specific jobs, is quick to see the advantage of using job-fitted work gloves on its own operations.

The Macklin Company's problem was abrasion. On-the-job tests showed that Edmont gloves, coated on the palm with rough-textured, live natural rubber, wore 3 to 5 times longer than leather gloves, although they cost less. They also proved cool because of their ventilated fabric back, and were much preferred by the workmen for flexibility and grip.

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Are you interested in saving 40% to 70% of glove costs, with fewer accidents, faster work handling and improved employee attitude? Send us a brief description of your operation, materials handled and temperature condition. From our 34 types of modern coated fabric gloves we will recommend the type of glove and coating that fits your job, and supply free samples for testing.



Finishing, siding and truing operations require much handling of abrasive wheels. Grab-it gloves wear 3 to 5 times longer on these operations.



Grab-it gloves with rubber coated palm and safety cuff have proved best for stockroom.

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Job-fitted for use where oils, chemicals or moderate heat are present. Resist both cutting and abrasion. The Edmont line also includes reinforced plastic coated gloves which have many job applications.



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The No. 307 is a dust respirator designed for comfort and long life. The body is of rubber, has a special exhale valve, large filter pad absorbs dust and other foreign matter.

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The No. 308 is of the same design as the No. 307 but is equipped with a special activated charcoal cartridge to not only absorb dust and other foreign matter but also paint and lacquer fumes. Ideal for all spray painting.

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This No. 84 Respirator consists of a soft aluminum mask to which filter pads are attached. Can be formed to assure comfort and firm fit on any face. It is popular because of its light weight and simplicity in fitting. Ideal for simple dust problems such as exist in grain elevators. Also recommended for use by temporary employees.



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such as cataract, and possibly retinal damage. The lens appears to be more susceptible to x-rays than the skin and other tissues of the body. One of the reasons is the slower rate of repair in the case of lens tissue, and hence repeated doses of radiation are cumulative in their effect.

Avoidance of exposure to these rays becomes an important problem in industry, since both fluoroscopy and radiography are commonly employed to find defects in alloys, blowholes, cracks and defects in castings, and corrosions in cables, reinforced concrete and welding.

9. *Beta Rays*—Beta rays, which are derived from radioactive substances such as radium, or when led off an incandescent filament (cathode rays), have penetrating power of only three to six mm of tissue. The damage to the eye, skin, and other tissues is superficial, like a severe burn. Radioactive materials are finding increasing use, not only in basic chemical, agricultural, and medical research, but also in industrial production.

10. *Neutron Rays*—The absence of electrical charge in neutrons gives it greater penetrability and is similar in effect as hard X-rays and gamma rays. These rays not only produce cataract but also a variety of damage to the retina of the eye. The commonest source of neutrons at present is the cyclotron and in atomic bomb blasts. Reports of cataracts among cyclotron workers and survivors of atomic bombing have brought out evidence of the effects of these neutron rays.

Protection

There is eye protective equipment for every type of hazard, and those in charge of safety programs must choose that which is best suited to their problem. For protection against excessive ultraviolet and infrared radiation, as in welding, metal pouring, skimming, heat treatment, furnace work, and workers with germicidal lamps, spectacles with filter lenses, sometimes with eyeshields, are recommended.

"Tinted" Lenses—Colored lenses have been used since the middle of the 16th century. The first colored lenses were green. In the 17th century blue glass was brought forth, and because of

psychological reasons was widely used. Gray or smoked lenses were made in London in the 18th century and were popularly called "London-Smoke." Then came an avalanche of lenses in various colors, each designed to absorb a definite portion of the spectrum.

The color per se has nothing to do with the specific filtering of any rays. This filter power is due to the specific chemical composition of the lens.

Types of filter lenses may be grouped as:

GROUP 1—Glasses used on certain jobs for filtering out excessive radiant energy of wave lengths usually shorter or longer than those in the visible spectrum.

The electric arc and the cutting flame of the acetylene torch are rich in ultraviolet and should not be viewed without the aid of proper goggles or of special glass in the welding shield. Specifications of such glass have been developed and approved by the Bureau of Standards and adopted by the American Standards Association.

In addition, welders and those in the vicinity of welding operations are advised to wear clear glasses. The ultraviolet screening effect of ordinary safety-hardened clear glass is sufficient. For filtering out infrared rays, heat absorbing glasses which contain large amounts of ferrous oxide are used.

GROUP 2—Glasses which are advertised to cut the glare of too brilliant sunlight.

In this regard, ophthalmologists disprove the widespread, continuous and indiscriminate use of tinted lenses and object to most of the commercial propaganda. Healthy, properly corrected eyes should be able to tolerate bright sunlight unless it is reflected directly into the eyes by water, snow, sand, and so forth to the degree that it interferes with vision.

When exposed to excessive sunlight, the glasses should filter out 75-80 per cent of the light. When more light is transmitted, it is felt that these tinted glasses have no real value, other than cosmetic. This would include soft tints, tints 1, 2, 3, and A, B, C, depending on which commercial nomenclature is used.



WHAT'S NEW

IN

NATIONAL SAFETY COUNCIL SERVICES *

Railroader Cartoon Booklet

Those who have chuckled at the cartoons in the Council's "Safe Railroader" will be happy to hear that a collection of these Sid Hix drawings is now available in booklet form.

The new booklet, *Close Clearance*, presents 32 pages of top favorites from the Railroader. By poking fun at the human foibles



that lead to costly accidents, the cartoons teach safety in a way that all workers can understand.

Close Clearance will add spice and humor to your safety program. It will make an excellent souvenir for use at safety meetings and rallies.

The booklet is printed in two colors with a four-color cover.

Operation Safety

There's a new, nation-wide traffic safety program scheduled to start March 1st, that will be of value and interest to any company operating fleets of vehicles or conducting off-the-job safety programs for the employees.

It's the Code of the Road cour-

tesy program which is being built around the slogan, "Make Courtesy Your Code of the Road," and is being co-sponsored nationally by the National Safety Council, Inter-Industry Highway Safety Committee and National Committee for Traffic Safety.

Unusual features of the program are three items which will bring the courteous driving message home to the motorist at all times—even when he's behind the wheel of his car and in traffic.

These specially prepared items include a dash sticker for use in the vehicle as a constant reminder to the driver to make courtesy his code of the road, a bumper sticker to identify him with the program and remind other drivers of the importance of courtesy, and a Code of the Road calendar card that reproduces the code and seven points of courteous driving in a form the driver will keep and refer to from time to time.

Industries are urged to distribute each of these items to all employees; civic, service and community safety groups are urged to distribute them to members and the public. Complete information on these and other materials from this special program may be obtained by writing Operation Safety, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Home Safety

Safe at Home, the Council's new booklet that tells how to stay safe in and around the home, is now available. The booklet replaces the former booklet of the same title and represents an entirely new approach. Dispensing with the usual



listings of hazards or safe practices, the booklet strives to inculcate good habits by pointing out the attitudes we should assume in our daily work and play in the home.

Safe at Home escorts us through the home—stairs, hallways, bath and bedroom, kitchen, basement and attic—pointing out the attitudes we should adopt, some representative safe practices and the danger spots.

Special pages are devoted to the specific accident problems of the man of the house, young children and the aged.

Printed in a size that will fit a worker's hip pocket, *Safe at Home* is amply illustrated in two-colors by a nationally famous cartoonist.

Winter Driving Booklets

The response to last year's pamphlet on basic winter driving rules was so overwhelming that this year the Council's Committee on Winter Driving Hazards has issued two booklets, *Here Are Winter Facts for Passenger Car*—To page 107

* Look to this page each month for latest news about NSC services. Address requests for additional information, samples or prices to the Membership Department.

For a Successful Poster Program



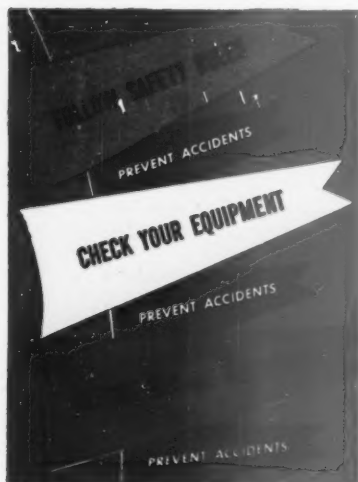
**ON TARGET
FOR AN
ACCIDENT**



-when you take a chance

JUMBO POSTER for MARCH 1954

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".



0018-A

8'2x11'2

This new four color poster is illustrative of the 72 four color posters shown in the 1954 Poster Directory.



0133-C

25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in one color on the following pages and in the 1954 Poster Directory.

TOP DRAWER

THE new 1954 Directory of Occupational Safety Posters should be in the top drawer of your visual aids planning. *It contains miniatures of 744 posters—top-notch selections on a great variety of subjects.* Additional copies are available at 50 cents each—write to Membership Dept., National Safety Council.

Posters miniaturized on this and the following pages are **NEW**. Excepting the Jumbo poster (left, upper), all will be in stock throughout 1954. Those posters shown in one color on the following two pages are actually printed in two or more colors.

For a more successful poster program: first make your selections from the brand new posters shown on these pages and then from the hundreds of illustrations in the 1954 Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

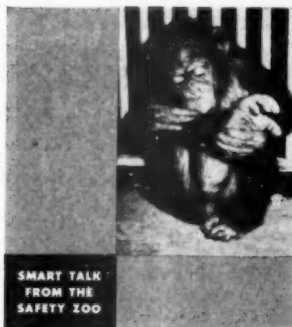
Posters below are printed in two or more colors
(Available only in sizes indicated)

YOUR BACK CAN CRACK!



LIFT WITH YOUR LEGS

NATIONAL SAFETY COUNCIL
9972-A 8½x11½



**SMART TALK
FROM THE
SAFETY ZOO**

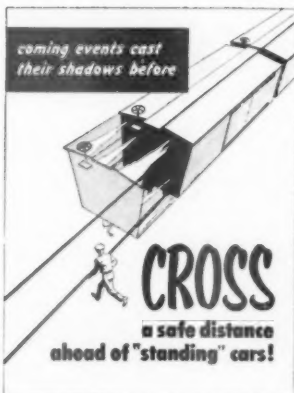
*No use monkeyin' around
with ANY cut-
I'll get First Aid FAST!*

NATIONAL SAFETY COUNCIL
0013-A 8½x11½



**wear safe
clothing**

NATIONAL SAFETY COUNCIL
0038-A 8½x11½



CROSS
a safe distance
ahead of "standing" cars!

NATIONAL SAFETY COUNCIL
0072-B 17x23

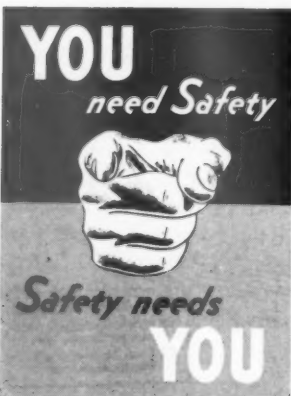


NATIONAL SAFETY COUNCIL
0022-A 8½x11½

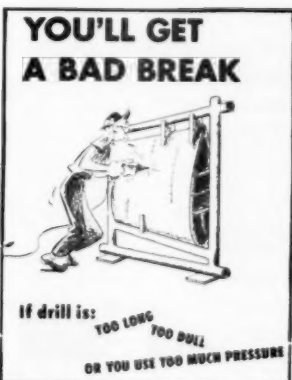


**KEEP BOOM
CLEAR—
ELECTRICAL
CONTACTS
KILL**

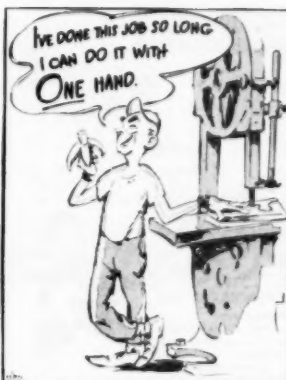
NATIONAL SAFETY COUNCIL
0083-A 8½x11½



NATIONAL SAFETY COUNCIL
0093-B 17x23



NATIONAL SAFETY COUNCIL
0082-A 8½x11½



NATIONAL SAFETY COUNCIL
0071-B 17x23

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL
0085-A 8½x11½



NATIONAL SAFETY COUNCIL
0112-A 8½x11½



NATIONAL SAFETY COUNCIL
0076-A 8½x11½



NATIONAL SAFETY COUNCIL
0099-B 17x23



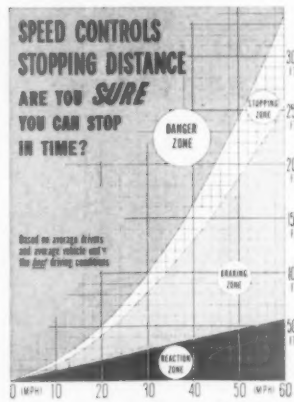
NATIONAL SAFETY COUNCIL
0111-B 17x23



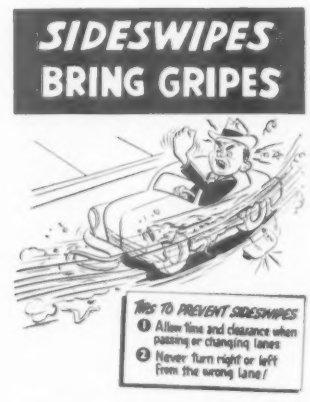
NATIONAL SAFETY COUNCIL
T-0101-B 17x23



NATIONAL SAFETY COUNCIL
V-0108-A 8½x11½



NATIONAL SAFETY COUNCIL
V-0113-B 17x23



NATIONAL SAFETY COUNCIL
V-0104-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

"57,000 Investors in Democracy"

HENRY FORD II

President, Ford Motor Company



"In the most practical way possible—the regular purchase of U.S. Savings Bonds—millions of Americans are demonstrating complete confidence in our form of government. Investors in democracy, they are freely staking their personal security on a fundamental faith in the future of our nation. I am proud that today more than 57,000 Ford Motor Company employees are participating in the Payroll Savings Plan. Last year they bought bonds worth \$25,000,000 at face value, and this year the total of their purchases will be even greater. Through their thrift they are helping to keep America strong."

Few investment groups are as important to America as the members of the Ford Payroll Savings Plan. They are *important* in size—57,000 men and women... important in buying power—they actually purchase \$25,000,000 in Savings Bonds every year... and *very* important to our economic stability—"through their thrift they are helping to keep America strong."

"Oh," someone may say, "Ford is a big company and they do things in a big way. It's easy for Ford to get thousands of people to sign up for the Payroll Savings Plan."

It was relatively easy for Ford, and it is easy for any company, large or small, to build a good Payroll Savings Plan if—(1) The head of the company recognizes the importance of the Payroll Savings Plan to the employees, the company, and the country; (2) If

he will show the same degree of personal interest that Mr. Ford takes in the Ford Payroll Savings Plan.

If you would like to match Mr. Ford's Payroll Savings record—percentage-wise, of course—all you have to do is to see to it that a Payroll Savings Application Blank is placed in the hands of every man and woman in your company. It will help, of course, if you remind them, over your signature, that the Payroll Savings Plan is a safe and sure road to personal security.

The Savings Bond Division, U.S. Treasury Department, Washington, D. C., is ready to provide all the help you need in the way of Application Blanks, literature, and a complete outline of a simple, person-to-person canvass that will put an application blank in the hands of *every* one of your employees. Your employees will do the rest.

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NATIONAL SAFETY COUNCIL



Exhibits Feature Power-Line And Elevator Safety

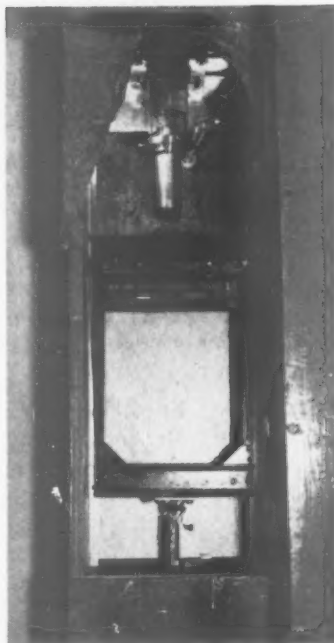


Seven-foot scale model of power line under summer and winter conditions, showing effect of ice loading on conductors and poles, and demonstrating why strength of lines and supports must be based on winter loading.

THE EXHIBITS of the National Bureau of Standards, a newcomer at the National Safety Congress this year, contained two novel and interesting models. One, a seven-foot scale model of a power line under summer and winter conditions, showed quite graphically the effect of ice loading on conductors and poles. It made it clear why the strength of such lines and their supports must be based on winter loading.

Part 2 of the *National Electrical Safety Code*, for which the Bureau is sponsor, covers the structural requirements for lines in various loading zones (heavy, medium or light). Field data collected over many years, supplemented by wind tunnel tests at the Bureau to determine "shielding effects" of multiple conductors mounted on the same crossarm, form the basis for such code requirements.

A one-foot-to-the-inch model of elevator and oil buffer was unique in that the pressure cylinder and the outer reservoir were of Lucite so the operation could be followed during a drop. A water-



A one-foot-to-the-inch model of an elevator and oil buffer patterned after elevator testing equipment at National Bureau of Standards.

white mineral oil was used in the buffer. The buffer was located in a realistic cutaway concrete pit.

Pulling a handle on the model raised the miniature elevator car a distance of four inches, at which point it was automatically released and dropped on the buffer.

The elevator car was complete in every detail; gusset plates, threaded adjustable stay rods and beam-supported platform. Cast-iron test weights, $\frac{1}{2}$ " x $\frac{1}{2}$ " x 1", neatly stacked on the platform, provided the working load.

A card on the model stated the buffer would meet the *ASA Elevator Code* requirements for buffer retardation (2.5g) and a Brush accelerometer record of an actual drop of the model car was displayed showing a peak of 2.1g for the load shown. The card, with true Bureau precision, stated that this load was 5,006 lb., corresponding to a load of 8650 lb. for a full-scale car.

This model was patterned after the elevator testing equipment at the National Bureau of Standards which was used during an extensive research on oil buffers and is used to make type certification tests for compliance with code requirements. Such certification is required by many states and cities using the *ASA Code* as a basis for elevator regulations.

Pacific Plant Maintenance Show to Open July 15

CONCURRENT with the West's first Plant Maintenance Show scheduled to be held in the Pan Pacific Auditorium, Los Angeles, July 13-15, will be a plant maintenance conference. The conference will be under the direction of L. C. Morrow, nationally-recognized authority in this rapidly-expanding field, and consulting editor of *Factory Management and Maintenance*.

Plant maintenance, under present-day standards, embraces every activity that keeps a plant operating efficiently, authorities agree.

In the July show, exhibits and discussions will cover sanitation, replacement of parts, preservation of facilities and equipment, safety devices and measures, painting, polishing, waxing, industrial design, and supplies of every sort which do not actually become a part of the finished product.

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INCREASED PROPERTY PROTECTION
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More and more Sipco Dunking Stations are seen in plants large and small across the nation, and for good reason!

The SIPCO safe smoker, for more than seven years, has been doing a job—a big safety and good housekeeping job that "makeshift" cans and buckets can't do.

Specifically designed for hard industrial use—and abuse! Cigarettes, cigars, matches, etc., are doused immediately. There is no smoldering—no fire hazard! Easy to care for, easy to install, Sipco Dunking Stations will last a lifetime!

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Valentine's Day

—From page 33

Pretty soon the Mixmaster was going again, and the gals started to bring out the food.

On May's head was one of those caps the nurses wear in surgery, efficiently restraining her blonde hair.

She grinned at me as she took it off. "Sue gave me this to start housekeeping with," she said. "Around Mixmasters and laundry wringers and so on."

After the young people had dined and made talk and gone home, Sue said, "Dear, the mop is all tangled up in the washing machine wringer. I wish you'd get it loose."

"And just how did you manage to get a mop tangled with the wringer?" I asked.

Sue smiled tolerantly. "Charge it up to the education of the young, my dear. I was just demonstrating to May why every housewife ought to protect her hair when she works around household machinery. I don't think you'll have any more trouble with her in the shop, either."

Coming Events

—From page 46

May 20-21, Seattle, Wash.

Forest Products Safety Conference. (New Washington Hotel), Robert L. Gilmore, c/o Rayonier Incorporated, P. O. Box 539, Hoquiam, Wash.

June 8, Wausau, Wis.

Wisconsin River Valley Regional Conference, Wisconsin Council of Safety.

June 9, Eau Claire, Wis.

Northwest Regional Conference, Wisconsin Council of Safety.

Sept. 14-16, Cleveland, Ohio

Sixteenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). Carl L. Smith, executive secretary, 2073 East Ninth St., Cleveland 15, Ohio.

Sept. 16-17, York Harbor, Me.

Twenty-seventh Annual Maine State Safety Conference (Marshall House). A. F. Minchin, secretary, Maine State Safety Conference, Department of Labor and Industry, Augusta, Maine.

Oct. 18-22, Chicago

42nd National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, general secretary, National Safety Council, 425 North Michigan Ave., Chicago 11.

What's New

—From page 99

Drivers and Safe Winter Driving Facts for Truck Drivers.

These booklets summarize the Committee's findings which are the results of 15 years of testing. It is planned to publish new editions each fall to include the latest material as it is developed. Single copies of either booklet may be obtained by writing to the Committee on Winter Driving Hazards, National Safety Council, 425 N. Michigan Ave., Chicago 11. Quantity prices on request.

Early Morning Sessions

Can you imagine thousands of men at a convention being on tap shortly after 8 a.m. to hear a speech? Well, it happens every year at the early morning sessions of the National Safety Congress. And the 1953 Congress was no exception. In fact, Paul J. Mundie, consulting psychologist for Himber, Mundie and McClary, stood them in the aisle for four days.

Mr. Mundie's talks on "Personal Effectiveness" are now available in booklet form as volume 35 of the 1953 Congress Transactions.

Most of the other 34 volumes of the Congress Transactions are now in print.

President to Open Safety Conference May 4

PRESIDENT EISENHOWER will open the President's Conference on Occupational Safety scheduled for May 4, 5 and 6, in Washington. Secretary of Labor James P. Mitchell has announced.

Bringing together some 1,200 of the nation's top leaders of business, labor, insurance companies, educators, state and federal officials and private safety organizations, the Conference will consider further means of reducing the annual toll of some 1,450,000 disabling injuries including 8,800 deaths in construction, manufacturing, public utilities, trade, finance, service and government, the areas primarily serviced by the organization.

On May 3, the day preceding the opening of the main conference, some 500 safety technicians from all over the country will meet

in Conference committees. These committees include:

Accident Records, Analysis and Use, headed by Ewan Clague, U. S. Commissioner of Labor Statistics, Washington, D. C.

Engineering, J. C. Stennett, National Association of Mutual Casualty Companies, Chicago, chairman.

Education, Dr. William N. Cox, Jr., Georgia School of Technology, Atlanta, chairman.

Research, Dr. William P. Yant, Mine Safety Appliance Co., Pitts-

burgh, chairman.

Governmental Safety Services to Industry, John V. Grimaldi, Association of Casualty and Surety Companies, New York City, chairman.

Public Employee Safety, Robert L. Jenkins, Corps of Army Engineers, Washington, D. C., interim chairman.

Community Occupational Safety Programs, Don E. Mumford, New York Central Railroad, New York City, chairman.

Jackson for Safety

JACKSON GOGGLES type W-50

Made for gas welding, cutting and brazing, these goggles consist of two plastic eyecups joined firmly, yet flexibly for proper fitting.

- Eye cups have vent screens against fogging, and baffle plates to keep out light and flying particles. Lenses, 50 mm., have cover glasses.
- All Jackson headrests are of extruded plastic, hold their shape, are easy to clean and sterilize. Cork padded sweatband is inexpensive, easy to replace.



Type WR-50, shown left, has the same goggle assembly as type W-50, but is held by an adjustable elastic headband.

- Goggles for chipping and grinding have clear, hardened 50 mm. lenses. They are otherwise similar to the welding goggles described above, but vent screens carry no baffle plates.

Type G-50 with headrest

Type GR-50 with elastic headband



JACKSON EYESHIELD type J-1

A lightweight protection for eyes and face in metal finishing, metal pouring, spot, gun and flash welding, woodworking, etc.

- Plastic headrest is moisture proof, easy to clean, has replaceable sweatband. Spark deflector protects forehead.
- Fire repellent visors are quickly replaceable. They are available 4, 6, and 8 inches deep in a variety of shades and thicknesses.



Sold world-wide through distributors and dealers. For greater safety in the welding shop, use Jackson's famous insulated arc welding electrode holders and cable connectors.

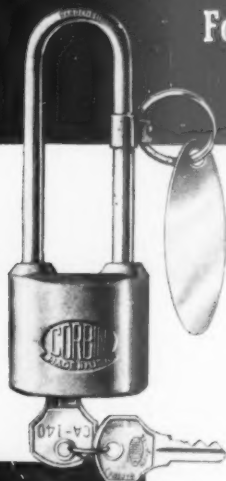
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CORBIN P65-R Padlocks are made especially for safety purposes. Solid die cast case; 2 3/4" shackle; attached metal identification tag. Disc tumbler mechanism has 200 regular key changes or up to 700 changes when so required. Can be keyed alike or master-keyed.

We will gladly help you work out a PERSONAL-SAFETY system based on your specific needs. For further information without obligation, write to:



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ROLAND DAIGLE, student, Lewiston, Maine—drowning. Certificate of Assistance to WALLACE E. CLOUTIER.

MRS. H. G. HOFF, housewife, Fraserdale, Ontario — drowning. Certificate of Assistance to MRS. E. A. SHERWOOD and MRS. D. A. GRILLS.

JAY LOOPER, lineman, South Kentucky Rural Electric Cooperative Corp., Somerset, Ky.—electric shock.

WILLIAM TIKKANEN, owner, A & T Transportation Co., Quincy, Mass.—gas asphyxiation. Certificates of Assistance to THEODORE AHOLA and HERBERT FLECK.

RICHARD M. FLANAGAN, telephone installer, Western Electric Co., Inc., Manchester, Conn.—electric shock.

PHYLIS A. FLESKES, airman; USAF, APGC, Eglin Air Force Base, Florida—drowning. Certificate of Assistance to WILLIAM S. BACH, A/3c.

ROBBIE LEE CARDIN, office worker, Mattoon, Ill.—drowning. Certificate of Assistance to WILLIAM E. DAVIS.

ROY N. BLAKE, journeyman lineman, The Kansas Power and Light Co., Abilene, Kan.—electric shock.

RICHARD M. STILLMAN, avalanche forecaster, U. S. Dept. of Agriculture, Idaho Springs, Colo.—gas asphyxiation.

JAMES G. LICKLIDER, manager, Berthoud Pass Lodge, Idaho Springs, Colo.—gas asphyxiation.

G. J. POSTERT, drilling foreman, The Texas Company, Hobbs, N. M.—gas asphyxiation.

GENE T. MCGRAW, apprentice lineman, Kansas City Power & Light Co., Bashear, Kan.—electric shock.

Hold Courses on Management Techniques

TWENTY-FIVE STUDENTS attended the first of two 1954 "Safety Management Techniques" institutes held at the National Safety Council offices January 18-22. The Institute is named "Management Techniques" because the subjects presented are not primarily safety engineering but techniques which safety directors use. It has been given once yearly for several years but was given twice in 1953.

A full day was spent on most subjects with extra hours for practice assignments in some. Subjects were: Psychology for Safety Men; Public Speaking; Professional Writing for Safety Men; Photography and the Use of Photographs in Safety; Use of Statistics in Safety; Safety Organization and Program Clinic; and Problems in Conference Leading.

Instructors were:

Professor Howard Klopp, director of placement, Wright Junior College of Chicago—Psychology.

Professor Karl Robinson, School of Speech, Northwestern University—Public Speaking.

Harry Lange, production manager, Sarra, Inc.—Photography.

Kent Francis, director of publications, Industrial Department, National Safety Council—Professional Writing

H. Gene Miller, director, Division of Statistics and Research, National Safety Council—Statistics.

Thomas Fansler, director, Home Safety Division, National Safety Council—Conference Leading.

The Clinic in Safety Organization was a particularly interesting activity. Counselors and participants were all the senior members of the Council's industrial staff. The assignment was for each student to present a previously prepared description of his safety program which was then discussed by the entire group. Many members said that the preparation alone, according to an outline furnished them in advance, gave them a new insight into their programs. Some said in making their presentations, "This is the way we

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KIMWIPIES*—industry's favorite disposable wipes—now better than ever

Here are the new 5" x 9" Kimwipes—now improved to meet your goggle wiping needs to a "T"! Manufacturing advances make them even more lint-free, more efficient than ever before—and at a far lower price. They're in a new modern look-

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Please send me a sample of the new improved Kimwipes

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STANDARD REGULATION
SIGNS OF ALL KINDS FOR
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have been doing it but since studying it I have decided to make some changes."

Another total participation activity was an hour each day watching safety films produced by the National Safety Council and other organizations and discussing how to use films in safety training. Films are coming into greater prominence in the field of safety and many new ideas were presented by members on how to use them.

Also discussed was the subject of homemade films for safety instruction in specific jobs. Several homemade films were shown and discussed.

Living at the same hotel, the members, all qualified safety or management people, spent several evenings together in profitable shop talk. Some have found the Institute so profitable they have attended more than once. The next meeting will be April 12-16.

Safety Library

—From page 36

Management

A Management Approach to Industrial Safety. By Walter J. Byrne. *The Monitor.* Associated Industries of New York. Nov. 1953. p. 14.

Rope

Correct Care and Handling of Wire Rope. By Walter C. Richards. *Plant Engineering.* Dec. 1953. p. 94.

Trucks

Safe Operating Practices Mean More Industrial Truck Service. By Fred W. Braun. *Plant Engineering.* Dec. 1953. p. 96.

Ventilation

Ventilating Gas-Air Mixtures. By John D. Constance. *Plant Engineering.* Dec. 1953. p. 74.

Rating and Recognition

—From page 25

is usually the chairman. Other members of the committee are selected from the plant managers or their assistants.

One major problem of the plant inspection program is how to design the program so the old as well as the new plants get credit for what they actually are doing. To solve these problems emphasis is placed on conditions which exist at the plant at the time of inspection and improvements that have been made since the last inspection. Rating of the plants is based on the use that has been made and the care that has been given to existing facilities. To adequately judge the improvement that has been made from one year to the next, one member of the committee is held over as a member of the following inspection team. It is his job to grade the improvement factor from one year to the next.

One of the more beneficial aspects of the entire inspection program is the discussion between the inspection committee and members of plant management. This results in the introduction of new ideas and viewpoints. After the plant has been inspected the committee sits down with the

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ONOX SKIN TOUGHENING!



ONOX
SPONGE RUBBER
FOOTMAT

**Used by Over 70% of the
Largest Industries in the United States**

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Men like Onox • It relieves tired, aching feet

Modern research has upset the old theories about Athlete's Foot control. Skin specialists now say that the best chance of preventing Athlete's Foot is to improve the condition of the skin. *That's what Onox does.* Onox mineral salts toughen the skin and make it resistant to fungus growth. No fungus growth—no Athlete's Foot.

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local management and proceeds to tell them what they think of the plant. They bring out many of the recommended changes for discussion.

Scoring of the plants is divided into four categories. Each of these contains an improvement factor of five points. This factor can be graded only by the hold-over member of the previous inspection committee. The four categories are as follows:

I. General Appearance of Existing Facilities

Neatness and orderliness of storage of materials are considered, as well as cleanliness. Consideration is also given to the effort made, without unreasonable expense, for improving the general appearance of the location, such as, lawns, flowers, etc.

II. Maintenance of Existing Facilities (Other than those mentioned in III below)

Prime consideration is given to the care that has been exercised in adequately maintaining buildings, equipment and roads and walks, etc. However, property scheduled for abandonment or scrap is ignored in this rating.

III. Sufficiency and Maintenance of Existing Personnel Services

Consideration is given to appearance, maintenance and sufficiency of items listed that are obtained at the plant inspected. No rating will be attempted for any service or facility that does not exist at the location being inspected.

IV. Practices

In rating this item consideration is to be given to the use made of existing facilities with regard to safety, plant protection, fire protection, elimination of unpleasant working conditions, and improvement.

After the completion of the inspection tour the committee writes a brief report on the results of their inspection. This report is generally divided into three sections: (1) general observations, (2) recommendations for improvement, and (3) actions taken on the recommendations of the previous committee. This report is given to the Executive Committee of the Company and is supple-

mented by a verbal report. Copies of the written report are sent to the various plant locations.

Further proof of the importance top management at Monsanto attaches to the continuing inspection program, besides constant surveillance of the work of the various inspection committees, is the activity in connection with awards. Without exception, considerable ceremony is made of the presentation of the award pennant in each class, when representatives of

top management are always present.

Charles Allen Thomas, Monsanto's president, is a frequent figure at such ceremonies, and if he cannot attend, others of top management stature in the company will be there. To bring the value of the program home to the individual employee, award of gift items to each plant employee, ranging up to \$3.50 each, is authorized. These take the form of such items as lighters, knives,

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POWDERED SKIN CLEANSER

**THE MOST
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A HEAVY DUTY SKIN-CLEANSER without a peer in the industrial field. It has a high anhydrous content and is superfatted for extra mildness. This super mild soap is scientifically blended with an edible corn meal scrubber and a special skin emollient to give thorough, safe cleansing to the dirtiest hands.

COMMODORE—Same formula as "Treet" but extra coarse. Ideal for those who prefer a "rough feeling" soap, yet one that will leave the skin soft and smooth.

An Invitation—We will be glad to send detailed information and prices on these products, and invite you to ask for free sample quantities. No obligation, of course.

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Made for industrial use
—office washrooms, plant
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UP!

UP!

UP!

TO ANY DESIRED
HEIGHT

EASILY ...
SAFELY ...
ECONOMICALLY
HI-LIFT

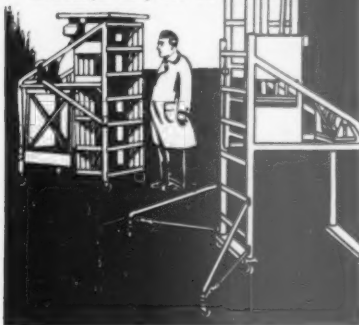
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vacuum jugs, and the like.

Monsanto's plant employees are proud of their records in safety, and for maintaining plants which are "good neighbors" in their communities. Monsanto management recognized the many-faceted importance of the activities which have produced its standing of second in the chemical industry when rated by accident infrequency. The plant inspection program is a key activity.

Has Safety "Just Grown"?

—From page 29

some of them were obviously preventable, and that some of them were actually being prevented, forced the general adoption of safety engineering and the formulation and general acceptance of different ideas about "accident causes." *

But the idea of God's willing the occurrence of accidental injuries has some support even today. And many people who have abandoned the idea nevertheless strongly believe that injury severity cannot be controlled and is strictly in His hands.

Most people now believe that the true "causes of accidents" are various "unsafe acts" and "unsafe conditions," with emphasis upon the acts. That concept, while it is a considerable improvement over the "will of God" idea, can also stand a little refinement. However, as people who recognize the continuous growth of social forms and their philosophies, we should not flatter ourselves that our next refinement of the "accident cause" concept will be the ultimately correct one. It might be, but, more likely, it will be merely a closer approximation to the truth—another step toward a correct idea.

Another important question, and a currently controversial one in the field of safety, is whether we should try to prevent injury by engineering the hazards out of the job environment or by getting at the psychological reasons for the accident proneness of those who

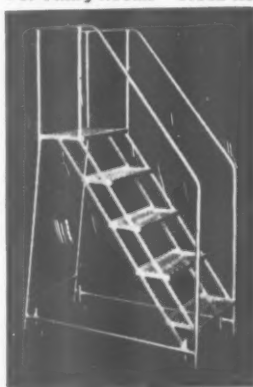
suffer injury. Such a heated controversy as this is a clear indication that safety has not yet attained full growth. We no longer attribute accidents to God, and we are committed to a policy of preventing them, but we differ as to how this is done.

There are safety people who will disagree, at first thought, with the proposition to be advanced in a subsequent essay that there is a point of diminishing returns for each phase of safety work as compared with every other phase, as well as for safety work in general. There are others who will agree but who will feel that it is unwise to give publicity to the concept.

There are safety people who have curiously perverted ideas about responsibility for accidents, about the reasons why safety records should be kept, and about how records should be kept and used.

The fact that there are these central questions upon which professional safety people hold opposite views indicates that safety has

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*Let Them Live, by Stewart Holbrook (Macmillan, 1938), discusses at considerable length the shift of popular opinion from fatalism to a belief that accidents can be prevented.

indeed just grew, and that the process of growth is still going on. Some of these disagreements result in contentions which cannot help but appear ungraceful to outside observers. Some are simply disagreements between prejudices of a large group on one hand and facts on the other. And some of them are just confusions of definition.

The purpose of this series of Essays in the Philosophy of Safety is to contribute in some degree toward the formulation and refinement of our philosophy of safety—partly by whatever merit their own content may have and partly by the merit of ideas that may arise in discussion which they may stimulate. Subsequent essays will discuss in detail some of the specific safety problems, controversies and questions raised in this introduction.

We can increase the mental poise and maturity of our safety Topsy if we can make it aware of where it has grown to. In other

words, there is a need for formulating the philosophy which now underlies our safety practices—for stating what we are trying to accomplish; for stating what we seemingly must believe on certain issues, if our safety methods and actions can be taken as a sign of what we believe; and for discovering wherein we are lacking in consistency. This is not a need of the moment which can be completely satisfied at the moment. It is a continuing need.

People Who Get Hurt

—From page 21

sults in paralysis. According to the United States Government's figures, there is a similar ratio of diagnosed to undiagnosed mental illness, if not worse.

The individuals rejected for military service have not disappeared from the face of the earth. They are living and working, many of them in industry.

Mental illness is no respecter of



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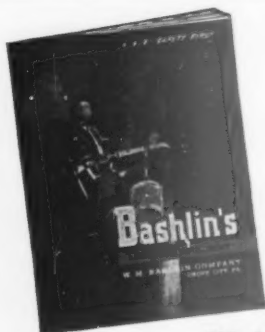
persons. It is common in high places as well as low. In one group of patients with definitely diagnosed emotional illness, management, supervision and labor, were represented in exactly the same ratios as their proportionate representation in the overall group. They had also incurred over a period of years, a 40 per cent greater incidence of serious injuries than the average for the plant.

The disability suffered by this significant segment of our population is almost incalculable. One need only look at the number of alcoholics and the disruption they cause, the high divorce rate and the havoc wrought to the individuals involved and their children; the carnage on the highways caused by mentally ill drivers; the expense, suffering and lost time through sickness which has its roots in emotional illness; the narcotic addicts and criminals; our behavior problems in children and adults. All these are forms of mental illness.

The conditions known as "accident proneness" has long been recognized. I purposely avoid the term because usage has the implication that it is an inborn state and, therefore, a hopeless condition.

We will never find a solution to any problem so long as we persist in evading reality and pretending the problem does not exist, or holding it up to ridicule, if admitted at all. A parallel is found in our approach to the problem of syphilis. For centuries society tried to ignore the existence of syphilis. But unlike a bad dream it did not go away with the daylight. It was not until the problem was openly faced that it became possible to search for treatment and cure.

"Weeding out" the emotionally ill, as the Armed Services discovered in World War II, solves no problem. Even after the Selective Service examiners rejected 20 per cent of the selectees for military service, psychiatric casualties were a staggering problem, before, as well as during combat. Discharges from the armed services for neuropsychiatric reasons numbered almost half of all medical separations.



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There is a sizeable psychiatric problem in industry which is in no way different from that found in schools, in military service or in society at large. A rapidly accumulating accident record may be only one manifestation of its existence.

People are industry's major asset.

Physicians have learned that the medical history is as important as the physical examination. Cumulative records of performances will enable us to detect the earliest signs of breakdown when correction is relatively simple. In the diagnosis of cancer, for example, it is often too late when the lump becomes obvious. Many years often elapse from the time minor emotional disturbances are first present until the patient finally announces to the world that he is Napoleon.

It is the duty of those of us who are charged with the responsibility for the health of others to learn how to make a diagnosis from early and apparently insignificant symptoms. However, to treat for the relief of symptoms without first making a sound diagnosis of the underlying cause reduces medicine to a form of dabbling.

The industrial nurse and safety supervisor are in an ideal position to see the earliest evidence of human failure if they use available data, but too often they don't.

Records for the sake of writing things down is a waste of time. Only when we learn from them are they useful. The history of human progress is the story of learning from records.

We are trying to learn from our past failures and experiment with ways for improvement. Our organization works that way in all its operations. Anyone can learn from the human experiments which go on all about us all the time. Only in this way will we ever develop a science of human relations.

Dr. F. W. Dershimer and I have followed such principles for a number of years and have drawn certain conclusions. This does not mean they are infallible. We do not wish anyone to accept our conclusions uncritically. When others have data which is contrary to our

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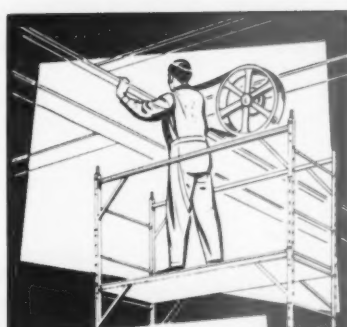
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findings, we need, and want to look at it.

In the spirit of free, scientific inquiry I want to present a part of a record taken from our medical files. The incidents are accurate, but the facts have been altered to prevent identification and avoid embarrassment to any individual. The case is presented only to indicate how in retrospect, we can see that the early evidence of mental illness was available, but we did not look at it.

This individual is in his middle years, and has more than 15 years of service with the company. He is an intelligent, skilled craftsman.

His personnel records indicate that his supervisors had always rated him highly in written comments. One note states in part "his health is good and he loses no time." His record of absenteeism at the time the note was made shows that he had been losing 35 days per year over many years for various illnesses. This is probably evidence of the right hand not knowing what the left was doing and is another indication of the need for properly correlated records.

He averaged about 30 visits to the dispensary per year, 20 for medical complaints and 10 for surgical, arising from injuries both on and off the plant.

He had five fractured bones and was known to have been involved in at least two automobile accidents.

In one year selected at random from his medical record the notes read as follows:

January 17—Requested cathartic. —Abrasion left thumb injured on door.

18—Redressed.

22—O.K. for injury January 17.

March 25—Abrasion right index finger—at home. Complaints of tight irritating cough which he thinks is due to fume exposure two years ago (insignificant exposure at the time).

April 1—Continues to complain of chest irritation. States family Dr. A. has advised several weeks off duty. Leave of absence to April 22 given.

7—Accident & Health insurance papers received from Dr. B. Diagnosis—rheumatism and upset stomach (gastritis).

14—O.K. for above sickness, returned to duty.

16—Final papers. A & H.

May 10—Laceration and contusion possible fracture right wrist. X-ray indefinite as to fracture. Kept on ward. Family and foreman notified.

13—No swelling—laceration healing. Treated. Throat swab.

14—Soreness right tonsillar area—swab.

15—Redressed right wrist laceration. Throat swab.

16—Redressed.

28—O.K. for injury right wrist.

July 10—Rusty nail wound—left thigh. Bumped into nail sticking out of beam. Treated and tetanus antitoxin given.

11—Redressed.

13—Redressed.

27—Cyst on left arm opened.

28—Redressed.

29—Redressed.

30—11:45 a.m.—Redressed. 4:10 p.m.

—Laceration left hand unloading material, cut on metal. Treated.

August 6—O.K. for injury of July 30.

15—Contusion with possible fracture of left ring finger. Caught between two barrels. X-ray.

September 14—12:50—O.K. for injury

August 15. 1:10—Again complaining of back, also headache. Given medication.

The medical notes continue on in about the same vein year after year.

During his employment he had several major surgical procedures and some minor ones. He had four serious industrial injuries.

Five or six years ago, the plant medical personnel recognized that this employee had a psychiatric problem and referred him to the psychiatrist. He flatly refused to cooperate.

Total disability wages have amounted to more than \$1,000. Direct medical expenses \$500; legal compensation payments \$2,000; charges for dispensary visits prorated, come to about \$3,500. This totals about \$7,000 in direct tabulatable costs. It does not include many less tangible costs.

There have been two formal written reprimands in his record. One has been removed from his record after two years in accordance with plant practice. The other is current and is for a serious operating error.

Contrary to written flattering comments, his supervisors report verbally that he was always a poor workman and extremely difficult to work with.

This employee is still working in one of our operations. He is still

classified by our medical staff as in good physical health, and is robust in appearance.

We cannot satisfactorily explain such consistent poor performance in a few individuals, as has been indicated by the data presented except to call it mental illness.

It must be clearly understood that the suffering of the emotionally ill individual is real. An injury is no less painful for being self inflicted; a stomach ulcer or high blood pressure is no less disabling, or less a threat to life because it may arise from emotional causes.

It is neither fair, nor useful to dismiss such individuals from consideration by saying the patient "imagines he is sick." It is quite impossible to bring about a broken leg or a stomach ulcer, or a headache by imagination. These patients suffer all the symptoms of which they complain and are seriously ill. We are dealing with profound natural forces.

I saw a patient recently who requested time off because his family physician said he was having "another nervous breakdown." There had been a similar episode several years previously for which he had been granted an extended leave of absence with pay. I was able to persuade him to come in and talk over some of his problems. None of them were very serious, except in their effects on him.

He remained at work, cooperated well for therapy, and improved during a two-week period. In our last interview, I mentioned that nervousness such as he had, sometimes resulted in injury. He held up the stump of a finger, grinned sheepishly, and said, "This happened about the time I had my last nervous breakdown."

Mental illness among "normal" people is widespread; we all suffer from it to some degree. Evidence to date indicates that there exists a sizable group of our fellow human beings, too large to be ignored, who are sick enough to constitute a real economic and public health problem.

There is a common belief that mental illness is an incurable condition and that once diagnosed nothing further is expected of the

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victim. The degree of irresponsibility tolerated by society is proportional to the badness of the patient's behavior. Of certain individuals nothing is required and they are encouraged to live out a vegetable-like existence in a mental hospital.

As a result of many years of independent research, Dr. Dershimer has evolved a new theory of the cause and transmission of mental illness which gives a less hopeless prognosis.

We now no longer look upon mental illness as a disease process like typhoid fever. We do not find that the individual is well one day, and desperately ill the next as in the case of infectious disease.

The facts usually indicate that the illness is a slow developmental process; that what presents itself today as a problem is the end result of increasingly irresponsible behavior. The history will indicate that the individual through childhood and adolescence was not required to obey the rules, and repeatedly was able, by one excuse or another, to evade his normal responsibilities.

Juvenile delinquency is now being recognized to be the result of parental failure to enforce discipline. It has also been belatedly recognized that juvenile delinquency is not a problem peculiar to any economic status. Rich people can be just as remiss in their obligations to their children's upbringing as the poor.

In general, we do not deny employment to any individual on the basis of emotional illness because we do not believe it need be a disabling condition. Our evidence is that the mentally ill individual is completely capable of meeting his normal responsibilities when so required.

If, however, we assume, on the basis of unsupported opinion, that we must excuse such individuals from their normal obligations, and do so, we make their sickness worse, and the condition does take on the appearance of hopelessness.

We, in industry, have not been alone in making such observations.

Dr. William L. Sharp³ reports his experience while neuropsychiatrist with the 99th Division dur-

ing World War II. "A total of 395 mild neuropsychiatric cases (a varied assortment of anxiety neuroses, other neuroses, and mild psychopaths) were salvaged from the precombat training period of about two years and were taken into combat. A total of nine cases were lost as neuropsychiatric casualties out of the original 395 mild psychiatric disorders during the first 50 days of combat, which included the Ardennes Bulge Battle (16 December '44 to 1 January '45). Only three of these nine cases had to be evacuated during the battle itself."

In discussing "combat exhaustion" (a polite military term for emotional sickness) among the armed forces in Korea, A. J. Glass⁴ in the *United States Armed Forces Medical Journal*, points out that "prevention of this syndrome lies in good leadership . . . One of the cardinal factors in effective therapy is prompt return to duty."

We find that direct psychiatric work with individuals, important

as it may be, is not the only solution to the problem. There will never be enough psychiatrists to cope with the number of people involved.

When those invested with authority (parents or bosses), are courageous enough to use it and by any legitimate means see to it that all people for whom they are responsible—subordinates, friends or family—meet their *normal* responsibilities, cures result.

I have purposely refrained from trying to tell anyone how to do his job. No one can tell another that. I have tried, rather, to point out an existing problem and indicate what must be done to correct it. The actual method which anyone uses to get results is a highly personal and individual thing.

I am certainly not advocating being cruel or unkind. It is important, however, that we must learn the real meaning of kindness. I do not see it as kindness to drive an emotionally ill individual into further suffering when with a little more forthrightness on the part of those in authority we might hold the patient's world of reality intact for him while his emotional upset has its beneficial effect on him.

In an article in NATIONAL SAFETY NEWS, February 1953⁵, I described two experiments in our organization. Two separate groups of several hundred individuals who had turned in a very poor safety performance changed, almost overnight, into areas of outstanding safety performance when the head of the unit demanded, safe productive work, and insisted that other forms of evasion of responsibility be stopped. In addition to the improvement in the safety record of these groups, there was much evidence of improved morale and mental health generally.

I advocate only the practice of sound principles of mental hygiene by all people in the same way that I, as a physician, advocate the practice of sound principles of physical hygiene and sanitation. These principles apply with equal effectiveness to all levels of society and industry. Top management must do their *normal* job; the janitors must do their *normal* job.

As a psychiatrist, then, I see



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poor safety performance on the part of the individual and the organization as only one of many symptoms of mental illness.

In the present state of our art, and in keeping with the data available, it appears that holding all people to meeting all their responsibilities will improve the mental health of individuals or organizations and improve safety performance along with the improvement in the other symptoms of mental illness.

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Distinguished Service

—From page 66

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Film Contest Deadline February 22

ENTRY BLANKS have been placed in the mail for the 1954 contest conducted by the National Committee on Films for Safety. This annual contest will include motion pictures and sound slidefilms produced or released during 1953, in the fields of occupational, traffic and transportation, home, and general safety.

Suitable awards are given to sponsors of outstanding films in each classification, as determined by the committee judges. There is no charge to contestants for entries.

Contest entries must be received by February 22, 1954, at the headquarters of the National Committee on Films for Safety, 5th floor, 425 North Michigan Ave., Chicago 11, Illinois. Address William Englander, secretary, for contest forms or further information.

Green Cross News

—From page 44

Future" as one of the 100 young leading businessmen in that city selected for qualities of leadership and promise of future achievement. The Committee, sponsored by the Seattle Chamber of Commerce and the weekly news magazine, *Time*, nominated the individuals as "Newsmakers of Tomorrow," young men of vision who will contribute in a major way to the development of Seattle.

Industrial Fire Group

Plans of the New Jersey State Safety Council are underway to form an organization to deal exclusively with the problem of industrial fires in the state. To date two meetings, attended by fire protection personnel from 16 New Jersey industries and a representative of the State Department of Labor and Industry have been held. The group, to be known as the Industrial Fire Chiefs' Association of New Jersey will be a non-profit organization affiliated with the New Jersey State Safety Council.

The objective of organization is to act as an exchange group to discuss and solve mutual problems in the field of industrial fire prevention; to act as a clearing house



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Made in various designs and sizes and adaptable for installation on skidding problem spots where other makes of gratings cannot be considered.

"Bustin — Designers and Manufacturers of Metal Products Since 1928"

Bustin **FIRM-GRIP
GRATING CORP.**

*Pat. Pending

Send for Complete Literature

Dover, New Jersey





THE KENNEDY "VICTORY CAP"



Designed
for
GREATER SAFETY
for all
industrial jobs

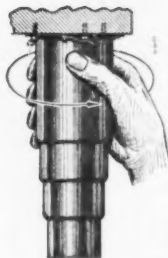
Better protection for all the hair all the time because the full, wide, snood-type back of the Kennedy "Victory" Cap permits complete coverage. Easy to put on. Adjustable to all head sizes. 11 styles to choose from.

Manufacturers and distributors of a complete line of safety clothing and equipment. Write Dept. N-1 for information regarding your needs.

**V. E. KENNEDY-
INGALLS CO.**

3735 NORTH 35TH STREET
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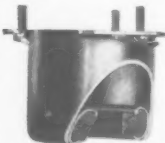
Guide Pin Covers



PROTECT OPERATOR AND GUIDE PIN

Effectively guard against injury to operator, die and press on operations where bushings leave the guide pins. Protect pins and bushings from chips and dirt when entire pin and bushing are covered. Inexpensive, easy to attach.

Felt Oiler Ring in top units provides POSITIVE lubrication.



WRITE TODAY FOR DESCRIPTIVE FOLDER AND PRICE LIST

Name _____
Address _____
Title _____

Wiesman Manufacturing Co.
31 South St. Clair Street • Dayton 2, Ohio

for gathering and dissemination of information on causes and prevention of industrial fires; and to promote educational and training sessions on industrial fire safety and modern techniques of combating various types of fires in industries. A constitution and by-laws for the Association has been adopted and officers will be elected at a meeting to be held next month.

"One for the Road"

Recently at Michigan State College, the Police Administration Department, *Parade Magazine* and the Traffic Safety Association conducted a three-day scientific test of drinking drivers to determine the actual effects of drinking on driving ability. Drivers were road tested in dual-control cars, given alcoholic drinks, chemically tested for "being under the influence" and then road tested again. This process was repeated all day long.

Findings show mechanical skill to drop only a little while judgment and attitude was quickly lost. Professors Brandstratter and Turner, who were in charge of the experiment, state that while no definite conclusions can be reached in so short a test, the facts derived from the scientific methods used indicate alcohol quickly lessens ability to react to emergencies, to make a quick rational decision and does dangerously warp the drivers' attitude.

Iver Larson Honored

Iver Larson, executive vice-president of the San Francisco Chapter, NSC, was recently honored by the United States Junior Chamber of Commerce "In recognition of Unselfish Services Rendered as the Outstanding Member of the Safety and Transportation Committee of the San Francisco Junior Chamber of Commerce." An appropriate certificate was presented to Mr. Larson on behalf of the national organization. Larson recently contributed a feature article on "Planned Traffic Safety" for "Pacific Air and Truck Traffic." The article was an interesting study of the successful safety program of Colliers Transportation, a state-wide lumber hauling firm that changed a bad accident record into a good one through the installation of a well planned year-around safety program.

Occupational Safety

The Greater Minneapolis Safety Council recently announced its program of 1954 occupational safety conferences, which began late in January. There are four monthly sessions, the first three of which include separate meetings for particular groups and types of work, i.e., "Emotional Problems in the Prediction and Control of Accidents;" "Speaking of Safety;" "The Ultimate Costs of Industrial Injuries," etc. The fourth and last meeting, held on April 20, is a banquet and entertainment program open to those who have attended previous sessions. There is no registration or attendance fee for the series which will be held at the Nicollet Hotel, Minneapolis.

Lincoln Safety Crusade

Radio station KOLN-TV, Lincoln, Nebraska, as a community service, provided the Lincoln-Lancaster Safety Council with a weekly 15-minute telecast which started last June. In keeping with the council's slogan, the show was

ON OILY AND GREASY FLOORS

STOP

COSTLY SLIPPING ACCIDENTS

USE

TAMMS

FULLER'S EARTH

Adds greatly to the safety of your shop • Provides safe non-slip footing • Absorbs oil and grease • Lessens fire hazard because, unlike saw dust or wood shavings, it is non-inflammable • Every shop needs this low cost safety aid.

A trial will convince you.
Send for FREE SAMPLE.

TAMMS INDUSTRIES, INC.

Dept. HW-10 • P.O. Box 10 • Dayton 2, Ohio

titled "Looking into the Future with Safety."

Numerous civic, social and service groups provided personnel while local business and industrial members of the safety council supplied the necessary properties for the shows. The addition of this new media to the six-year-old KOLN safety council weekly radio program is producing a definite impact upon the listening-watching area. Recently the governing board of the safety council presented the station and its staff with an award of merit in recognition of its positive and continuing contribution to community safety service.

Pasadena Joins Los Angeles

The Pasadena Chapter of the National Safety Council has joined the Greater Los Angeles Safety Council and the two groups will operate as a single unit in the future, according to L. W. Van Aken, President of the Los Angeles Chapter. In explaining the amalgamation, T. William Heidner, president of the Pasadena Chapter, emphasized that the special services and resources of the Los Angeles Chapter will now be available to the people of Pasadena and should result in a more effective community program. Although the Pasadena Chapter activities have been transferred to the Los Angeles location, Heidner said the local volunteer leadership and organization will remain the same. Formal acceptance of the Pasadena Chapter as a unit of the Greater Los Angeles organization was made November 17 at a meeting of the Executive Board of the Los Angeles Chapter. At the same time Heidner was made a member of the Los Angeles Board.

Calendar Contest Winners for December

First prize in the National Safety Council's Safety Calendar Contest goes this month to Harry K. Miller, Mannheim Plant, Alpha Portland Cement Co., Rowlesburg, W. Va. The theme in this contest was hope for the best, get ready for the worst. Mr. Miller's line was adjudged the best of all those submitted. It was:

For an equally gay motorist.

Second prize went to Mrs. H. I. Miller, secretary, Warren Petroleum Corp., Houston, Texas, for this line:

Or she'll never be "Mrs." — just missed!

Third prize was awarded to Mrs.



LOST WEEKEND!

The business you worked a lifetime to build can be reduced to rubble in hours—because your Watchman was inadequately supervised during a critical weekend.

The DETEX tape-recording GUARDSMAN Watchclock gives you plant protection you can trust 7 days a week! Write today for free folder.

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SAFETY EQUIPMENT FOR ALL INDUSTRIES



Offers finest all-weather protection.

IPCO UTILITY RAIN SUIT

Absolutely waterproof and windproof . . . Patterned roomy to be worn over regular clothing.



The IPCO Utility Rain Suit consists of coat, pants and detachable hood. Double texture fabric with a sheet of solid rubber vulcanized in between assures waterproof qualities. Olive drab color.

WRITE FOR BULLETIN NO. 14



Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

2850 N. FOURTH STREET • PHILADELPHIA 33, PA.

USE THIS NEW SAFETY MATERIAL

ALL OVER

YOUR
PLANT

Work platforms



Flooring



Catwalks



Partitions



Safety
GRIP-STRUT

Pat.
Pending

NON-SKID—RUGGED—LOW COST

Safety Grip-Strut is a new basic material. All one piece, steel or aluminum, in various sizes and gauges. Sold like lumber, used like lumber and stocked in your storeroom like lumber. Ideal for on-the-job fabricating. Not welded, riveted or expanded. It presents an open space, in a diamond shaped pattern, in excess of 75% of the area for ready access of light and air and gives a positive NON-SKID footing in all directions. Ideal for stair treads, fire escapes, cable trays, work platforms, catwalks, flooring and for original equipment safety treads. Your own mechanics can install it—it's inexpensive, yet permanent and safe.

Write today for new catalog showing loadings and methods of easy application in your plant.

Distributors in all principal cities.

GRIP-STRUT division

THE GLOBE COMPANY

Manufacturers since 1914

4018 S. Princeton Ave. • Chicago 9, Ill.



Stop a Wildcat!

Extra Tough Hand Protection

Stanz oils

Milled neoprene makes tough Stanz-oils stand extra hours contact with oils, acids, caustics and solvents. Milled neoprene has higher tensile, tear resistance than any other oil resistant rubber.

Super-Safe grip creates confidence, speeds work—handles wet slippery objects as if dry.

Only a liquid-tight glove gives positive physical protection from conditions that cause dermatitis.

32 PIONEER styles, weights, sizes and colors. Stanzoil catalog quickly shows how to pick best, most economical glove for each job. Write for it today!

N-54 heavy weight all neoprene 14" length. Curved fingers, Super-Safe grip.

The **PIONEER** Rubber Company
237 Tiffin Rd., Willard, Ohio



Quality Gloves for 35 Years

You Can't Fall
IT'S A LIFE SAVER



IT LOCKS—IT HOLDS

Prevents death and injuries from falling.

SAFETY DEVICE FOR LADDERS

Easy and inexpensive to install: Clamps to rung, peg, pole or frame. No welding or cutting.

Simple to operate: No upkeep. Requires no attention from climber. Anyone can use it. Safety Specifications: High safety factor. Will not rust or corrode.

Safety Tower Ladder Co.

1024 Burbank Blvd. P.O. Box 1052

BURBANK, CALIFORNIA



ALSO MANUFACTURERS:

SAFETY LIFELINE LOCK

Member
National Safety Council

Charles M. Fay, The Narragansett Electric Co., Providence, R. I., for the following line:

If we all drove that way . . . who'd exist?

The December limerick was:

*For dear Dot, an extreme optimist,
Traffic hazards just do not exist.*

*Yes, she's happy, no doubt—
But she'd better watch out*

Thirty \$5 prizes were issued to:

Louis Grossman, textile chemist, Stein-Davies, Long Island City, N. Y.

Mrs. Earl Boyle, Buckeye Steel Castings Co., Columbus, Ohio

Mrs. Ernest M. Grider, General Motors Corp., Indianapolis, Ind.

Mrs. Charles H. Stone, Macon, Ga. (Individual Member)

Mrs. Agnes Craig, stenographer, Soss Mfg. Co., Detroit, Mich.

Mrs. Jack De Leury, Bendix Aviation, South Bend, Ind.

Mrs. Ned Fish, secretary, University of Missouri, Columbia, Mo.

Frank Cowan, chief engineer, Swift & Co., Perry, Iowa

Mrs. Mary Etta Major, Keystone Steel & Wire Co., Peoria, Ill.

Robert B. Campbell, industrial engineer, E. I. du Pont de Nemours & Co., Victoria, Texas

Mrs. Mildred Paaske, Pan American Refinery, Texas City, Texas

A. L. Jordan, Post Office Dept., Tulsa, Okla.

Mrs. H. W. Guenther, Northeastern State College, Tahlequah, Okla.

Francis O. Hatler, Great Northern Railway, Great Falls, Mont.

Miss Susie Mae Smith, City Board of Education, Tuscaloosa, Ala.

Mrs. Mildred S. George, General Motors Corp., Indianapolis, Ind.

Mrs. D. J. Homan, Water Dept., Denver, Colo.

L. C. Lester, St. Regis Paper Co., Kalamazoo, Mich.

J. Eugene Brown, Drayton Mills, Spartanburg, S. C.

Rose Burnham, Willsboro, N. Y. (Individual Member)

Mrs. Madeline Morrison, Metropolitan Life Ins. Co., Glen Falls, N. Y.

Mrs. Linda Reade, Pittsburgh, Pa. (Individual Member)

J. G. Kuhn, Western Electric Co., Inc., Indianapolis, Ind.

Mrs. H. Muller, Danboro, Pa. (Individual Member)

George Gambler, engineer, Bethlehem Steel Co., Bethlehem, Pa.

J. R. Rowe, Universal-Cyclops Steel Corp., Pittsburgh, Pa.

Francis J. Spurrier, Crown Cork & Seal Co., Inc., Baltimore, Md.

Shirley Reynolds, payroll clerk, U. S. Gypsum Co., Lisbon Falls, Me.

William J. Wyskocil, Shell Chemical Corp., Martinez, Calif.

Mrs. Fritz Campen, Keystone Steel & Wire Co., Peoria, Ill.

The magic
whispers...



*When Grandpa tucked you between his knees,
you knew you were going to listen again to
his wonderful watch—to hear its magic
tick . . . tick . . . tick . . .*

*And as you listened, those measured whispers of
time shut away the world, leaving you close to
Grandpa, secure in his love.*

From fathers and mothers to sons and daughters passes
the lifeblood of happiness—security. The privilege of
providing it for those we love can be found only in a
land like ours.

And another wonderful thing is this: By realizing this
privilege of freedom for ourselves, we achieve the security
of our country. For, think—the strength of America is
simply the strength of one secure home touching that
of another.



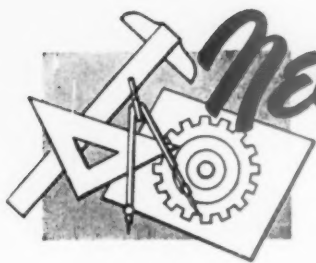
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**Saving for security is easy! Read every word—
now!** If you've tried to save and failed, chances are it
was because you didn't have a *plan*. Well, here's a sav-
ings system that really works—the Payroll Savings
Plan for investing in Savings Bonds.

This is all you do. Go to your company's pay office,
choose the amount you want to save—a couple of dol-
lars a payday, or as much as you wish. That money
will be set aside for you before you even draw your
pay. And automatically invested in Series E U. S.
Savings Bonds which are turned over to you.

If you can save only \$3.75 a week on the Plan, in 9
years and 8 months you will have \$2,137.30. If you
can save as much as \$18.75 a week, 9 years and 8
months will bring you \$10,700!

For your sake, and your family's, too, how about
signing up today?



New safety equipment for industry

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Road Sweeper

The new Homer Magnetic Road Sweeper employs permanent magnets to pick up nails, wire and ferrous metal pieces from roads, loading areas, runways and other locations where tramp metal presents a



hazard to rolling equipment, or to personal safety.

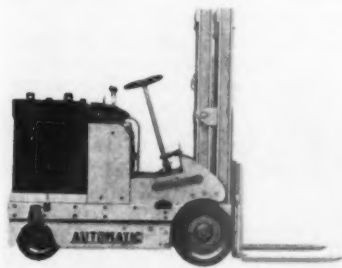
These sweepers are self contained. They require no electric source and are safe to operate in any atmospheric condition. The sweepers are available in 4 sizes, with effective sweep widths of 48, 60, 72 and 96 inches. Each model is equipped with built-in receptacle into which recovered tramp metal is stored until the end of the sweep. The sweepers are furnished with a trailer hitch which is easily attached to towing vehicle. For further information, write:

The Homer Manufacturing Co., Inc., Lima, Ohio.

Item No. 1.

Fork Truck for Hazardous Operations

A line of electric fork lift trucks manufactured by the Automatic Transportation Company has been approved by Underwriters' Laboratories for use in hazardous locations involving fire or explosion. This



is the first time UL has given an industrial truck such recognition, according to the manufacturer. The testing laboratory's

specifications are used by the National Fire Protection Association. Full details may be had by writing the manufacturer:

Automatic Transportation Company, 419 W. 87th St., Chicago 20.

Item No. 2.

Shoe Saver

A new leather preservative utilizing silicones to keep work shoes and leather equipment soft and pliable is available. Known as Shoe Saver, the material is a



clear fluid which may be easily applied with a soft cloth or swab.

Like other silicone-based treatments for textiles and masonry, Shoe Saver is a water-repellent, not a water-proofing agent. It does not clog pores in the surface of the leather, but permits it to breathe.

The product is currently available from distributors and full information may be had from the manufacturer:

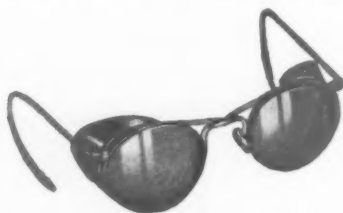
Dow Corning Corp., Midland, Mich.

Item No. 3.

Spectacles

The reinforced arch bridge, spot-welded to rigid nickel silver frame is a new development in the goggle illustrated. Temples are cable, plastic-covered, with a flat front portion to assure comfortable spring action.

The three nose bridge sizes are 21 mm, 23 mm, and 25 mm. There are three styles



for each of the bridge sizes. The 4100 is without side shields. The 4102 has wire screen side shields. The 4103 has green

acetate side shields and in addition to the clear hardened lenses, this style is also offered with the Sel-Green hardened lens. Write the manufacturer for more information:

Sellstrom Manufacturing Co., 622 N. Aberdeen St., Chicago 22.

Item No. 4.

Work Glove

A new safety glove has been announced that uses the steel box principle as employed in safety shoes, to provide protection against mashed fingers.

According to the manufacturer, the glove is light in weight and so designed that the safety tips do not interfere with hand freedom of the workman. This glove is known as the Free Touch Armortip safety glove.

A tempered carbon steel cap is cemented into the tips of three fingers on each hand. Compression tests made on these steel boxes have shown that each tip resists



considerable pressure. These gloves are made of green sueded pigskin and clearly marked with a large label across the back. Also, the tips of the first, second and third fingers are punched so that the steel tips are visible. For complete information, write:

Wolverine Shoe and Tanning Corp., Rockford, Mich.

Item No. 5.

Unloading Platform

The new Nichols Safety Tank car platform reduces hazards of working on slippery tank car tops, when unloading tank cars.

The device consists of an oversize pipe column support surrounded by a movable pipe column that supports the operator's

New safety equipment for industry

Further information on these new products and equipment may be obtained by writing direct to the manufacturer or to National Safety News. Accompanying coupon is for your convenience.



platform. The movable pipe column and operator's platform rests on an oversize Timken Thrust type roller bearing, which permits the operator to turn the safety platform 360 degrees by hand wheel operation, if desired. The movable pipe support is kept concentric about the fixed column with the aid radial bearings mounted on vertical cam-type spindles for maintaining accurate alignment.

A 4 inch diameter extra strong oil pipe extends down into the fixed supporting column and is securely attached to the



base supporting casting. The pipe is long enough to extend up through the operator's platform at a desirable height, and to which is connected the high grade swing joints and horizontal pipe, elbow and upper half of the Quick-coupler. For completing the suction pipe run above the platform a 4 inch aluminum alloy light section suction pipe is provided with foot strainer and lower half of the clamp coupling.

The device is assembled in the shop and knocked down for shipment in such a manner that approximately 80 per cent of the device is kept intact on the fixed column. While this device, as it is now being furnished to railroads, is standard for the handling of diesel oil and lube oil, it can be easily adapted to the requirements of chemical and petroleum companies. For complete details write:

The Nichols Engineering Company, 3816 W. Grand Ave., Chicago 51.

Item No. 6.

Auxiliary Lighting Unit

Two auxiliary lighting units approved by Underwriters Laboratories in a redesigned line of 6-volt emergency lighting equipment have just been announced. Both new

units, known as Exide Light-guard Models M and T, conform to the recently revised National Electrical Code.

While including all desirable qualities of the prior model, the new units also include



recently developed features that increase efficiency and service life. Each new model is furnished with one 25-watt sealed beam lamp, but is available with two if desired. Lamps are completely adjustable to provide light in any direction. In the event of power failure, the one-lamp unit of both models will furnish more than eight hours of uninterrupted emergency lighting.

Should an emergency require a portable floodlight, the unit may be disconnected and moved to another location. When the line plug is disconnected the lamps light automatically and may be controlled manually by a toggle switch on the front panel.

All models are equipped with neon pilot lights which indicate when the units are ready for emergency lighting service. For full details write:

Electric Storage Battery Co., 42 S. 15th St., Philadelphia 2.

Item No. 7.

Explosion Proof Hand Lamp

This new explosion-proof, rain-tight hand lamp weighs only 4 and 3/4 pounds. Only the globe guard, globe-holder, and cord connector housing of this lamp. (Type EVH 103) are aluminum. The lamp receptacle housing, aluminum on earlier models, has been replaced by a lightweight high-impact molded phenolic composition.

The new lamp also has higher impact-resisting qualities. Its globe is seated against a metal flange by a heat and impact-resistant globe guard. Drop tests by Underwriters Laboratories and the man-



ufacturer have demonstrated that the globe does not loosen, even under severe shock. Both lamp chamber and handle are explosion-proof, separated by the lamp receptacle. Flame-tight joints, located along the globe-holder, handle and cord connector, prevent an explosion in one compartment from being transmitted into the other. These joints have five or more full threaded turns that after an explosion allow only cooled gases—not flames—to escape. Full details are available from the manufacturer:

Crouse-Hinds Company, 7th North Street, Syracuse, N. Y.

Item No. 8.

Floor Machine

The new Hild Vacuum Machine, Model 215, is designed specifically for heavy-duty dry clean-up work. The unit is powered with the latest type 3/4 hp. vacuum motor. Scientific control of the air stream throws

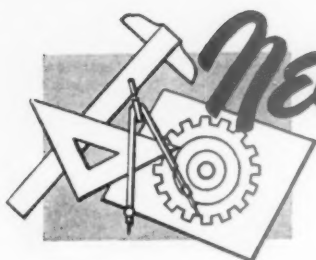


picked-up dirt against the sides of the dust container and thus minimizes clogging of the internal fabric air filter.

The feature of the new machine is its ease of handling. It tracks perfectly at the slightest pull on the hose. Easy handling results from method of mounting. Toward the rear of the tank are two ten-inch wheels with 1 3/4 inch semi-pressure tires. At the front, directly under the hose connection, is a three-inch rubber-tired caster with ball-bearing swivel. The machine weighs only 52 pounds. The carpet tool, the floor, wall and ceiling sweeping tools and the five-inch utility tool all have swivel connections which enable the operator to maintain continuous surface contact without twisting the hose. Complete information may be obtained from:

Hild Floor Machine Company, 740 W. Washington Blvd., Chicago 6.

Item No. 9.



New safety equipment for industry

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Power Sweeper

A new power sweeper called the Yard Bird, can be pushed by anything that moves—fork lift truck, motor truck, industrial tractor, etc. Special clamps are available for attaching or detaching. No tools are required.

The Yard Bird's broom is powered by an air-cooled engine and sweeps a path four



feet wide. It is equipped with a nine cubic foot collection hopper and a 25-gallon sprinkler system to control dust. The sweeper is mounted on three large rubber-tired swivel casters. A heavy bumper surrounds the entire unit. It is designed for use in industrial plants, warehouses, streets, airports, playgrounds, docks, railroad shipping areas and similar locations where power sweeping is required. The manufacturer is:

Little Giant Products, Inc., 1530 N. Adams St., Peoria 3, Ill.

Item No. 10.

Weld Flux

A new powdered flux for use, primarily, in the welding of Ampco 8 and other aluminum bronze sheet and plate is announced. It may be used with the inert-gas processes and bare Ampco-Trode filler rods in all grades.

The flux will insure the removal of oxides from the weld metal and reduce the surface tension allowing the deposit to flow into the side walls more uniformly thereby producing a sounder deposit of improved appearance. The flux is mixed with alcohol and painted on all surfaces of the joint to be welded. Write the manufacturer for full details:

Ampco Metal, Inc., 1745 S. 38th St., Milwaukee 46, Wis.

Item No. 11.

Magnet for Dock Plates

New safety and ease in handling dock plates in railroad freight terminals and large industrial plants is offered by a newly designed lifting magnet.

Designed to rest on the forks of a lift truck, the magnet is operated from a drum switch located on the steering column.



Only 12 inches in diameter, the magnet is suspended between the forks and held in place by a frame resting on the forks. When not in use moving and locating the dock plates, the magnet is removed from the forks and carried on the rear deck of the truck. Current is supplied through the magnet from the battery of any 32 volt or 36 volt battery operated truck, and, on gasoline operated trucks, from the six volt generator and battery normally used for lights. Complete details are available from the manufacturer:

Cutler-Hammer Inc., 315 N. 12th St., Milwaukee 1, Wis.

Item No. 12.

Road Sweeper

A newly designed non-electric magnetic road sweeper is now offered by Cesco of California. Nails, wire and other ferrous hazards to rubber-tired traffic on roads, airports and loading areas are removed by this sweeper.

Heart of the sweeper is a set of Alnico high intensity magnets. Available in standard sweeping widths of from four to eight



feet, these sweepers are supported on cold rolled steel frames with 16 inch heavy duty road-type wheels mounting pneumatic tires. Wider models are available on special order.

The complete sweeper includes stainless steel magnetic plate covers that dump collected tramp iron into the built-in retainer pans. This operation is quickly accomplished by a manually operated worm gear that serves to rotate the magnets to the discharge position. The stainless steel covers are then swung upwards and immediately release their loads into the retainer pans. Write for Bulletin No. 450 which gives full details:

Cesco, Division 39, Santa Rosa, Calif.

Item No. 13.

Solvent Cleaners

Announcement is made of the development of two solvent emulsion cleaners with an extra high flash point of 250°F. Known as Navee '53 and Hi-Flash, both products have a constant high flash point that does not vary when heated.

Navee '53 is an extra-heavy duty degreaser for removing hardened, oxidized and burned-on oils and grease. It also removes carbon stains, preservative coatings, lead oxide, packing greases, etc. It combines the cleaning efficiency of solvents with the rinsability of detergents.

Hi-Flash is an industrial degreaser designed to remove drawing, cutting and lubricating oils, buffing and polishing rouges from metal parts in the process of manufacture. Full details on both products are available from:

The Penetone Company, Box NSN 154, Tenafly, N. J.

Item No. 14.

Dock Board

The development of a new magnesium dock board loading system, specifically



New safety equipment for industry

Further information on these new products and equipment may be obtained by writing direct to the manufacturer or to National Safety News. Accompanying coupon is for your convenience.



designed for permanent installation on concrete docks is announced. The dock board units, called Perma-Docks, according to the manufacturer, represent a new departure in installations.

Combining the strength and lightness of magnesium, these docks are easily raised or lowered by one man. No power operated devices or counter balances are required. An additional feature is the Magliner safety curb which prevents power-truck wheels from colliding with the curb rail. Additional information is available from: Magline Inc., Pinconning, Mich.

Item No. 15.

News Items

Don S. Brisbin, Vice President, Sales of the Columbus McKinnon Chain Corp., and its Chisholm-Moore Hoist Division, Tonawanda, N. Y., has announced the promotion of seven staff members and the appointment of another to enhance the company's ability to serve its customers and expand sales operations. Promoted to manager of field sales with headquarters at the home office in Tonawanda is F. T. Benjamin, formerly Chicago District manager. Appointed to fill Mr. Benjamin's post is Karl L. Miller, former Assistant General Manager of Sales of the Buffalo Bolt Company, North Tonawanda, who will be regional sales manager in the Chicago area.

Promoted to the positions of product manager with headquarters in the Tonawanda office are E. J. Byrne, Hoists, G. F. Grace, Industrial Chain and R. E. Gerspacher, Automotive Chain. To the positions of Customer Service Manager, R. L. Pfanner, Hoists, O. H. Hager, Industrial Chain, and F. G. Schweitzer, Automotive Chain. Mr. Brisbin pointed out that these six men and Mr. Benjamin have been with the company for periods ranging from 20 to 33 years.

* * *

Combustion Control Corp., Boston, Mass., manufacturers of Fireye flame failure safeguards, announces the appointment of Arne Lovendahl as manager of its Philadelphia Area Office.

Mr. Lovendahl is a graduate of Northwestern University School of Mechanical Engineering. He served with the U. S. Marine Corps during World War II, and he was formerly employed by Crane Co. and by the Marshall Oven Co., Chicago, as chief engineer. For the past two years, he has been with Combustion Control Corporation as sales engineer in the Chicago Area.

* * *

John O'Malley has been appointed to the sales engineering staff of American Allsafe Company, Inc. Mr. O'Malley will handle sales and service on the line of industrial safety products in Northern and Western New York and adjacent territory.

A veteran of World War II where he served as gunner on a Navy flying boat,



John O'Malley graduated from the Buffalo State Technical Institute and is a licensed optician. Before joining Allsafe, he was associated for some years with the engineering and sales departments of Bausch & Lomb.

* * *

James R. McBrien, assistant division manager of The Diversey Corporation's Eastern Division since 1949, has been made manager of the North Central Division. Mr. McBrien joined Diversey in 1936 spending four years as field representative in the East and as district manager in 1940 and assistant division manager in 1949, Eastern Division. His new position will take him to Minneapolis, North Central Division headquarters. The Diversey Company of Chicago manufactures cleaners, disinfectants and insecticides.

* * *

Four new technical representatives have been assigned to territories by Oakite Products, Inc., manufacturers of industrial cleaning and related products. R. W. Krajicek, formerly with a major petroleum company, and a graduate in chemical engineering from Gonzaga University, has been assigned to the Montana area. Peter I. Meyer, a graduate of Rutgers University, is now serving food and general accounts in Milwaukee. Lew L. Pilkington, a Utah State Agricultural College graduate with three years experience in food processing plants, has been assigned to the Salt Lake City food territory. Linden C. Watkins, for many years with Remington Rand, Inc., and lately foreman of the plating and hardening division of their Elmira, New

York, plant, is now serving Oakite accounts in Nassau, and Suffolk Counties, Long Island, N. Y.

* * *

With the purchase of the interests of inactive partners, Acme Protection Equipment Company, manufacturers of gas mask



G. M. Glidden

equipment, is now owned and operated by active principals in the business. Through these arrangements, it is stated, that partnership is now limited to G. M. Glidden, general manager, R. A. Flood, production superintendent, and N. C. Tamandl, pur-

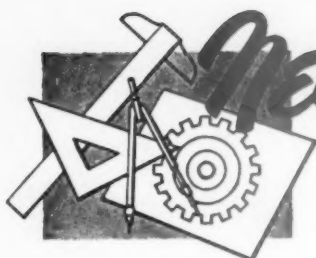


R. A. Flood

chasing agent and office manager—all of whom have been active with the company



N. C. Tamandl



New safety equipment for industry

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

since 1946. No drastic changes in either the policy or operation of the company is planned.

With the background of 31 years in the safety field, Mr. Glidden has had wide experience. Prior to his association with Acme, he was with Cities Service Company, Davis Emergency Equipment Company, Bullard-Davis, Inc., and E. D. Bullard Company.

Mr. Tamandl served for 10 years with E. D. Bullard Company before joining Acme. Mr. Flood was formerly with Sears Roebuck & Company in materials inspection.

* * *

The Diversey Corp. has announced that its Canadian affiliate, The Diversey Corp. (Canada) Ltd., has purchased controlling interest in Sanitary Products, Ltd., of St. Johns, Newfoundland.

Officers and executives of Sanitary Products, Ltd., will continue in their present capacities. N. P. Maxwell is managing director.

* * *

Tamms Industries, Inc., of Chicago has appointed Thomas R. Nugent as the firm's sales representative in Florida. Mr. Nugent will handle Tamms' line of raw materials for paint, varnish, abrasive and feedstuff production, as well as for the safety maintenance field.

* * *

Appointment of William H. Gates as manager of the Southwest District of Mine Safety Appliances Co., has just been announced. Mr. Gates, a resident of Dallas, has been assistant manager of the district for the past year. He succeeds Harry W. Richards, Tulsa, who died Dec. 5.

Mr. Gates, a graduate of the University of Pennsylvania, joined Mine Safety Appliances Company in 1937, and after train-

ing with the company's sales department in Pittsburgh, was assigned to the Southwest territory. He is a member of the American Society of Safety Engineers and Sigma Chi fraternity.

Headquarters and warehouse of MSA's Southwest District are at 1015 S. Cincinnati Ave., Tulsa. The district includes Oklahoma, Texas, Louisiana, Mississippi, and Arkansas.

* * *

The Beryllium Corporation, Reading, Pa., announces the appointment of Scientific Industrial Supply Co., 3958 South Vernon Ave., Chicago 16, Ill., as warehouse distributor of BERYLCO beryllium copper non-sparking tools.

With the appointment of Scientific Industrial Supply Co., users of non-sparking tools in Chicago and the adjacent areas of Illinois, Wisconsin, Northern Indiana and Western Michigan now have available a nearby source of supply from warehouse stocks. The Chicago distributor also provides customer service facilities throughout the areas mentioned.

* * *

Elco Manufacturing Co., Columbus, Ohio, announces the appointment of two new district sales managers.

John M. Harris is in charge of Oasis and Kelvinator water cooler and Air Drier sales in southern Illinois, Missouri, Kansas and Nebraska. He will also handle Kelvinator water cooler and Air Drier sales in western Tennessee.

William O. Corfield is in charge of Oasis and Kelvinator water cooler and Air Drier sales in northern Illinois, Iowa, Wisconsin, Minnesota and the Dakotas. His headquarters will be in Chicago.

Mr. Harris joined Elco early in 1953 and has intensive training in refrigeration and in field selling. He was formerly resi-

dent manager of the Columbus, Ohio, office of the Liberty Mutual Insurance Company. He is an air force veteran, having served in World War II and the Korean War. He is married and the father of four children.

Mr. Corfield was assistant commercial sales manager for Kelvinator in Chicago for the past seven and a half years. He was with the army in World War II and also was recalled to serve in Korea. He is married and the father of two boys.

* * *

A woman bought a drinking trough for her dog, and the salesman asked if she'd like it inscribed: "For the Dog."

"That won't be necessary," she said. "My husband doesn't drink water and the dog can't read."

* * *

"Your grandfather is a little deaf, isn't he?"

"A little? Why, yesterday he conducted family prayers kneeling on the cat."

* * *

"Thankful! What have I to be thankful for? I can't pay my bills."

"Then, man alive, be thankful you aren't one of the creditors."

* * *

"Did that new play have a happy ending?"

"Sure, everybody was glad when it was over."

* * *

Heard in an incubator: "Last one out is a rotten egg."

NATIONAL SAFETY NEWS

425 N. Michigan Ave., Chicago 11, Ill.

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FEBRUARY, 1954

NAME.....TITLE.....
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Trade publications

in the safety field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.



1. "X-12" Flame Retardant: Pamphlet describes and gives applications on how a wide range of fabrics and paper products can be treated with "X-12" flame retardant. Typical applications of "X-12" are: work clothes, gloves, uniforms, carpeting, bed clothing, curtains, webbing, etc. E. I. duPont de Nemours & Co., Inc.

2. Head and Eye Protection: Illustrated in this 64-page, 2-color Catalog No. 27 are many items of the company's line of head and eye protective equipment. Safety glasses, goggles for welders and chippers, welding helmets, face shields, respirators, masks, hoods, aprons, sleeves, and grinder guards are detailed. Chicago Eye Shield Co.

3. "Engineered Color": Detailed in this 14-page catalog is a plan for making the best use of color in industrial painting. The general rules about the use of color, the various highlighting and relaxing uses of color to prevent eyestrain in industry and the use of color in safety described. Charts with color chips included. Barreled Sunlight Paint Co.

4. "What's the Difference in Wire Rope": A new brochure explains differences in the selection of wire going into various rope, and differences in manufacturing processes. It also itemizes differences in results. Leschen Wire Rope Division, H. K. Porter Co., Inc.

5. Air Handling: Catalog 600 covers the entire line of air handling, air conditioning and electronic air cleaning products. It gives applications throughout industry. Reference data, tables and formulas for figuring requirements and applying equipment included. Westinghouse Electric Corp.

6. Industrial Laundering Service: This 24-page roster of Industrial Launderers will make it easy to locate a reliable laundering service in your community. Time saving details on scientifically-cleaned work clothes are also available. Institute of Industrial Launderers.

7. Exhaust Purifier for Gasoline Engines: Four-page folder illustrates and describes a device for removing carbon monoxide

fumes and odors from all types of gasoline-powered equipment. Chart also shows the physical effect of carbon monoxide. Oxy-Catalyst, Inc.

8. Adjustable Lighting Equipment: Bulletin No. 134 illustrates dextra-lites with spring-tension sockets and swivels for assembly tables, repair benches, desks, drafting boards, etc. Featured is the new coolite with an incandescent metal shade which never gets too hot to handle even with a 100-watt lamp. Swivelier Co., Inc.

9. "Tuffy Braided Wire Fabric Sling Handbook": 48-page manual gives factual data on 12 sling types and on various types of sling fittings. Thirty illustrations of sling uses, step by step illustrated instructions on splicing both tuffy slings and wire rope. Union Wire Rope Corp.

10. "Sheet Steel Separators": Bulletin No. 1053 illustrates and gives data and specifications for several sizes of this magnetic separator. It is designed to answer the problems of firms having continuous stampings, punch press and shearing operations who find it difficult to separate oily sheets of metal and feed them into machines. It also keeps workmen from endangering their hands by double feeding and sheet separating. The Basco Manufacturing Co.

11. Skin Protectant for Industrial Dermatitis: A comparison study of silicone containing protectants from the Department of Dermatology and Syphilology, of a leading university hospital has been made available. The Siladerm Laboratories.

12. Work Gloves: The company's full line of work gloves is detailed and illustrated in this catalog. Twelve pages list and describe heat flame resistant, heavy-duty, light-duty, flexible cut and abrasion resistant, non-slip gloves, pads to slip over gloves and hands. C. Walker Jones Co.

13. "Why Skleen": This 4-page, 2-color folder outlines the qualities and uses of the company's floor cleaner. Vestal, Inc.

14. "Steel Scaffolding and Equipment": 32-page booklet shows pictures of on-the-job construction and maintenance work done both inside and outside with steel

scaffolding. Miscellaneous building accessories included. Safway Steel Products, Inc.

15. Protective Clothing: Illustrated in this 48-page catalog is a complete line of protective clothing covering aprons, vests, coveralls, jackets, pants, sleeves, wrist and hand guards, shoe covers and hand pads. Materials include plastic, leather, asbestos and rubber. Classification of hazards chart included. American Optical Co.

16. Safety Ladders: Detailed, illustrated brochure features safety ladders called "stop-steps" which roll on ball-bearing casters yet locks to the floor when you step on the ladder. Cramer Posture Chair Co., Inc.

17. Accident Prevention Signs: Catalog No. 9 describes and features accident prevention signs. Specifications for colors of various types of signs is discussed. Featured are signs warning against eye hazards, machine danger, fire, first aid, sanitation, safety slogans, maintenance, traffic, danger tags, etc. Stonehouse Signs, Inc.

18. Safety Eyewear and Lenses: 43-page catalog covers company's complete line of safety lenses, safety glasses for occupational uses, molded cup-type safety goggles, acetate frame temples, all-acetate eye shields, safety glass parts and glass cases. Bausch & Lomb Optical Co.

19. "Sanitation Products": This 50-page catalog illustrates and describes company's line of sanitation products. Floor finishing products, floor waxes, floor maintenance, liquid toilet soaps, germicides and insecticides, deodorants and maintenance machines detailed. Huntington Laboratories, Inc.

20. "Respiratory Equipment": Catalog R-52 covers a complete line of respirators, helmets and hoods, gas masks, etc. Also shown are gloves, mittens and clothing. Pulmosan Safety Equipment Co.

21. Soap Ingredient: Hand soaps, liquids or powder that contain "actamer" a new soap ingredient has been said to reduce skin bacteria by as much as 97%. Literature and samples available. Monsanto Chemical Co.

NATIONAL SAFETY NEWS

425 N. MICHIGAN AVE., CHICAGO 11, ILLINOIS

FEBRUARY, 1954

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NEW! SINGER KOOL-MITT



for
**Extremely Hot
Handling Jobs**

Singer's new KOOL-MITT is ideal for use wherever any other mitt has proved inadequate. Made for efficient and economical use in foundries, heat treating plants, steel mills, pottery works, etc. The KOOL-MITT is unique because it consists of three layers of materials:— (1) ASBESTOS protects leather from shrinking and gives fireproof protection; (2) LEATHER gives the mitten long life and maximum protection against sharp and abrasive surfaces; and (3) WOOL to provide maximum insulation. Stitched with steel staples for long life. . . KOOL-MITT outlasts up to four pairs of reinforced asbestos mitts and in some instances has replaced asbestos gloves.

If your work requires real protection from the handling of extremely hot materials, write today for prices and samples.

*Pat. Appld. For

Work Gloves That "Sing"

**SINGER
GLOVE MFG. CO.**

860 W. Weed St.
Chicago 22, Ill.



CLIMB WITH SAFETY

**AVOID COSTLY
ACCIDENTS**

**JOHNSON
LADDER SHOES
ARE STANDARD
EQUIPMENT WITH
MANY LARGE USERS**

**YOUR CLIMBING IS
EASIER WITH THESE
SHOES**

**THEY DO NOT MAR
FLOORS—STILL THEY
GRIP ANY SURFACE**

**STRAIGHT LADDERS
STEP LADDERS**



JOHNSON LADDER SHOE Co.

Eau Claire, Wis.

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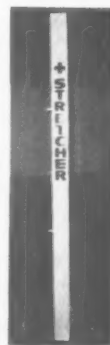
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HALCO STRETCHER CANISTER



The Halco Stretcher Canister is the ideal way to store your Stretcher. Made of heavy gauge steel, the Canister when closed will prevent dirt and grime from deteriorating the Stretcher. The Canister is 95" high by 5" wide by 8" deep, and comes finished in white baked enamel.

Write today for literature and the name and address of the nearest dealer handling the Halco Stretcher Canister.

A. E. HALPERIN Co., Inc.

75-87 NORTHAMPTON ST.
BOSTON 18, MASS.

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SYRACUSE 3, N. Y.

CESCO

NEW Temples



Now, CESCO Comfort-Bridge Goggles are furnished with new symmetrical tip temples which are interchangeable—right or left.

These new temples are better looking and designed with greater strength at the endpiece joint where breakage usually occurs. That's because the flat bar of the temple is at a right angle to the tip.

Insulators, made of attractive flesh-colored extruded plastic, are easy to replace. They slide freely over the flexible shaft ends and are automatically held in place. Closed end of the plastic insulator keeps shaft from poking through.

Added to the many other features of CESCO Comfort-Bridge Goggles, these new temples make the No. 374 and No. 380 CESCO Goggles the most acceptable of any safety glasses. Workers like to wear them. Service costs are lower because repairs are easier, and less frequent. And . . . they're "RIGHT . . . before your Eyes."



CESCO FOR SAFETY



Safety Eyewear

Increased
Ventilation!

New Screen Vents!

No Chemical Splashes
can reach
the eyes!



AO's NEW IMPROVED GOGGLE

We've made a good goggle even better with the newly designed all-rubber "700A." Ventilation efficiency has been stepped up more than two times by using new rubber grommets or vents equipped with chemically resistant stainless steel fine mesh screen. These vents are easily cleaned and are individually replaceable. They do not become clogged with dust in heavy exposures as quickly as the cloth vents used previously. *Air keeps coming through longer.* What's more, this increased ventilation reduces fogging of lenses to a minimum when goggle is worn in hot and humid places . . . and the fine screen grommets prevent any chemical splashes or sprays from endangering the eyes at any time. **YOUR NEAREST AO SAFETY PRODUCTS REPRESENTATIVE CAN SUPPLY YOU.**

Quick Facts

USES — For work on acid lines, storage batteries, metal plating baths, cleaning and degreasing, foundry shakeout, railroad car cleaning, cleaning coal-handling equipment, work in ships' holds . . . in railroading over dusty runs.

FRAME — Molded from non-irritating, acid-resistant neoprene. Airtight fit helps prevent acid or dust leakage. Bridge and other face-contacting edges are very comfortable.

HEADBAND — Rubber . . . extra wide, easily adjustable.

LENS — Large impact-resistant acetate, easily replaceable. Provides exceptional wide-angle vision. IT CONFORMS TO HIGH SAFETY AND OPTICAL STANDARDS.

NOTE:
Goggle may be
worn over
personal glasses



Keep your workers
in the Safety Zone
with AO
Safety Equipment

American Optical



SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES